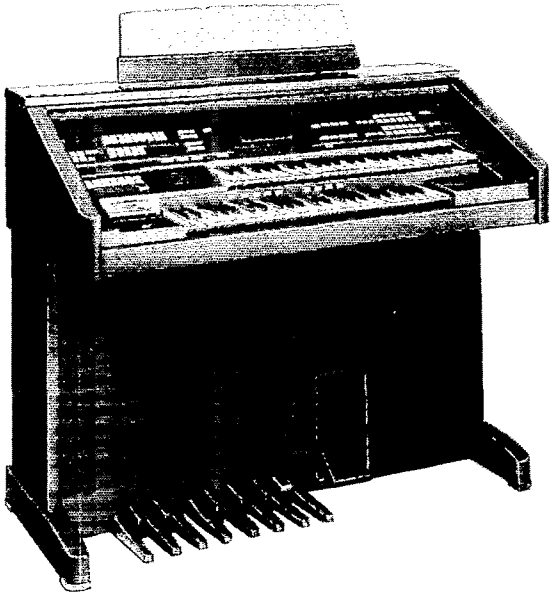
ORDER NO. EMID941514
A4

Service Manual

Electronic Organ

SX-GA1

(M), (MC), (XM), (EN), (EH), (EF), (EZ), (EW), (EA), (EP), (EK), (XL), (XR), (XS), (XD), (X), (XT)



AREAS

(M):	U.S.A.	(EK):	the United Kingdom
(MC):	Canada	(XL):	New Zealand
(XM):	Mexico	(XR):	Australia
(EN):	Norway, Sweden, Denmark, Finland	(XS):	Malaysia, Singapore, South Africa
(EH):	Holland, Belgium	(XD):	Saudi Arabia, Kuwait
(EF):	France, Italy	(X):	the Middle East, Indonesia, Hong Kong, the Philippines, Thailand
(EZ):	Germany		
(EW):	Switzerland		
(EA):	Austria		
(EP):	Spain,Portugal,Greece	(XT):	Taiwan

■ Specifications

KEYBOARD			UPPER KEYBOARD: 49 KEYS, LOWER KEYBOARD: 49 KEYS PEDAL KEYBOARD: 13 KEYS, FULL BASS PEDAL
SOUND GENERATOR			PCM
MAXIMUM NUMBER OF NOTES PRODUCED SIMULTANEOUSLY			ORGAN PART: 32 NOTES, ALL OTHER PARTS 64 NOTES
SOUND	ORCHESTRAL CONDUCTOR (UPPER/LOWER)		ORGAN, SOUND 1, SOUND 2, SOUND 3
	SOUND GROUP (UPPER/LOWER) 120 SOUNDS		GROUP: PIANO, ELECTRIC PIANO/HARPSICHORD, GUITAR, STRINGS/VOCAL, BRASS, MALLET, SPECIAL PERC, REED, SAX/FLUTE, SYNTH
	ORGAN	TYPE (6 TYPES)	GROUP: ELECTRONIC TABS, DRAWBARS, CLASSICAL PIPE ORGAN
		TAB	UPPER: 16', 5-1/3', 8', 4', 2-2/3', 2', 1', 4'PERC, 2-2/3'PERC LOWER: 8', 4', 2-2/3', 2', 1'
	BASS PEDALS (48 SOUNDS)		GROUP: ORGAN, STANDARD, CONTEMPORARY, CLASSICAL ORGAN, ORCHESTRAL, MEMORY
EFFECT	TREMOLO		UPPER ORGAN, LOWER ORGAN (SLOW/FAST)
	EFFECT		UPPER ORGAN, LOWER ORGAN
	SUSTAIN		UPPER ORGAN, LOWER ORGAN, UPPER SOUND GROUP, LOWER SOUND GROUP, BASS PEDALS
	DIGITAL EFFECT		UPPER SOUND GROUP, LOWER SOUND GROUP, BASS PEDALS
	BRILLIANCE		UPPER SOUND GROUP, LOWER SOUND GROUP, BASS PEDALS
	DIGITAL REVERB		○
TRANSPOSE			G-C-F#
TECHNI-CHORD			○
BACKGROUND SOUND			BIRD, WAVE, RAIN, CHURCH BELL, APPLAUSE
RHYTHM (140 RHYTHMS)			GROUP: 8 BEAT, 16 BEAT, BIG BAND/SWING, JAZZ COMBO, COUNTRY/RHYTHM & BLUES, MARCH/POLKA, LATIN 1, 2, ROCK/DISCO, MODERN ROCK, ROCK (OTHERS), SHOW TIME, TRAD, WALTZ
CONTROL			MAIN VOLUME, BALANCE, U/L ORGAN TYPE, START/STOP, INTRO & ENDING, FILL IN 1, 2, VARIATION, COUNT INTRO, SYNCHRO & BREAK, TEMPO/PROGRAM, KEYBOARD PERCUSSION, CONTRAST
AUTO PLAY CHORD			ONE FINGER, FINGERED, PIANIST, MEMORY, DYNAMIC ACCOMP
EASY PLAY STYLE			ONE TOUCH ORGAN, ONE TOUCH REGISTRATION, ONE TOUCH PLAY/MUSIC STYLE SELECT, MUSIC STYLE ARRANGER
PANEL MEMORY			1-8, SET

Technics

COMPOSER	5 PARTS: ACCOMP 1, 2, 3, BASS, DRUMS STORAGE CAPACITY: APPROX. 8600 NOTES INPUT MODES: REAL TIME RECORD, STEP RECORD FUNCTIONS: MODE SELECT, PATTERN COPY , LOAD SINGLE COMPOSER PATTERN MEMORY: 2 BANK × 6
SEQUENCER	16 TRACKS STORAGE CAPACITY: APPROX. 28000 NOTES INPUT MODES: EASY RECORD, REAL TIME RECORD, STEP RECORD FUNCTIONS: PUNCH RECORD, TRACK ASSIGN, EXPRESSION SETTING, EDIT (SONG CLEAR, TRACK CLEAR, TRACK MERGE, QUANTIZE, MEASURE ERASE, MEASURE COPY, MEASURE DELETE, MEASURE INSERT, VELOCITY CHANGE), PLAY, MEDLEY
DISK DRIVE	3.5 INCH (FOR 2HD, 2DD) DISK SAVE, DISK LOAD, MIDI FILE LOAD, MIDI FILE SAVE, DISK FORMAT, LOAD SINGLE COMPOSER PATTERN, LOAD SINGLE SOUND MEMORY
SOUND	PART SETTING (SUSTAIN, BRILLIANCE, REVERB, PAN, KEY SHIFT, TUNING, VOLUME, BEND RANGE, ASSIGN MODE), REVERB SETTING, TREMOLO SETTING, MASTER TUNING, TECHNI-CHORD TYPE, GLIDE SETTING
MEMORY & CONTROL	INITIAL SETTING, SWITCH ASSIGN, POWER ON MODE, PANEL MEMORY MODE, MUSIC STYLE ARRENGER MODE
SOUND EDIT	EASY EDIT, GENERAL EDIT (OCTAVE SHIFT, VIBRATO, AUTOBEND & TRILL), TONE EDIT (TONE VOLUME & PITCH, ENVELOPE, FILTER), EFFECT EDIT MEMORY: 2 BANK × 18 FOR EACH KEYBOARDS
MIDI	BASIC CHANNEL, CONTROL MESSAGE, OCTAVE/LOCAL SETTING, COMMON SETTING, PANEL MEMORY OUTPUT, MIDI PRESETS, INPUT SETTING, OUTPUT SETTING, SYSEX BULK DUMP, GENERAL MIDI
DISPLAY	LCD (240× 64 DOTS) CONTRAST, EXIT, DISPLAY HOLD, MORE/RETURN
HELP	○
DEMO	○
TERMINALS	LINE OUT (R/R+L, L), PHONES 1, 2, AUX IN (R/R+L, L), MIDI (IN, OUT, THRU)
OUTPUT	150 W
SPEAKER	25cm × 2, 6.5 cm × 2 MONITOR:(13 cm × 6 cm) × 2
POWER REQUIREMENT	370 W 300 VA (CANADA), 230W (U.S.A. AND MEXICO)
	AC 120/220/240 V 50/60 Hz AC 120 V 60 Hz (NORTH AMERICA AND MEXICO) AC 230 V 50/60 Hz (NEW ZEALAND AND EUROPE EXCEPT FOR UNITED KINGDOM) AC 230-240 V (UNITED KINGDOM)
DIMENSIONS (W × H × D)	122.4 cm × 120.9cm × 60.1cm (48-3/16" × 47-19/32" × 23-21/32")
NET WEIGHT	91 Kg (200.6 lbs)

*Specification are subject to change without notice for further improvement.

CONTENTS

■ PART I (INTRODUCTION)

HOW TO ASSEMBLE THE ORGAN I-2
SAFETY PRECAUTION I-3
INITIAL SETTING I-3
ARRANGEMENT OF CONTROL PANEL I-4
BASIC FUNCTIONS I-4
TERMINALS I-7
KEYBOARD RANGES I-8
PARTS LOCATION I-9
DISASSEMBLY INSTRUCTIONS I-10
ERROR DISPLAY I-14
SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLES I-15
ABOUT THE SELF-DIAGNOSTIC FUNCTION I-17
MIDI IMPLEMENTATION CHART I-19
PRECAUTIONS BEFORE SERVICING I-21

■ PART II (SCHEMATIC DIAGRAM)

WIRING CONNECTION DIAGRAM II-1
BLOCK DIAGRAM II-3
MAIN MAIN CIRCUIT BOARD II-6
MAIN MAIN CIRCUIT DIAGRAM II-9
MAIN CIRCUIT SOUND GENERATORS II-12
VSC VOICE SETTING COMPUTER CIRCUIT II-15
CPR VR CONTROL PANEL RIGHT, MAIN VOLUME CIRCUIT BOARD II-17
CPR VR CONTROL PANEL RIGHT, MAIN VOLUME CIRCUIT DIAGRAM II-19
CPL CONTROL PANEL LEFT CIRCUIT BOARD II-21
CPL CONTROL PANEL LEFT CIRCUIT DIAGRAM II-23
CPSQ SEQUENCER CONTROL CIRCUIT BOARD II-25
CPSQ SEQUENCER CONTROL CIRCUIT DIAGRAM II-27
CPSL CPC LOWER CONTROL PANEL LEFT, CONTROL PANEL CENTER CIRCUIT BOARD II-29
CPSL CPC LOWER CONTROL PANEL LEFT, CONTROL PANEL CENTER CIRCUIT DIAGRAM II-31
INV INVERTER CIRCUIT II-33
AS ACP JACK NW AMP & POWER SUPPLY, AC POWER SUPPLY, JACK, NETWORK CIRCUIT BOARD II-34
AS ACP JACK NW AMP & POWER SUPPLY, AC POWER SUPPLY, JACK, NETWORK CIRCUIT DIAGRAM II-37
MKB MANUAL KEYBOARD CIRCUIT II-40
PKB PEDAL KEYBOARD CIRCUIT II-43

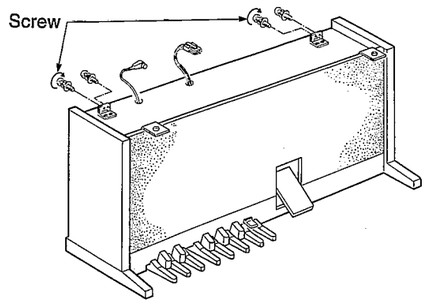
■ PART III (REPLACEMENT PARTS LIST)

REPLACEMENT PARTS LIST (P.C.B. and Wiring Parts) III-1
REPLACEMENT PARTS LIST (Cabinet and Chassis Parts) III-2
CABINET PARTS LOCATION III-10
PACKING III-15

HOW TO ASSEMBLE THE ORGAN

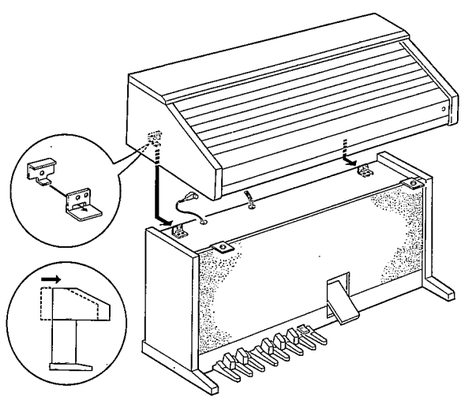
· To prevent the upper organ part from falling off the lower organ part, secure it firmly with the screws.

1 On the lower organ part, remove the four screws from the metal joints. Lay the cords to the back of the lower organ part.



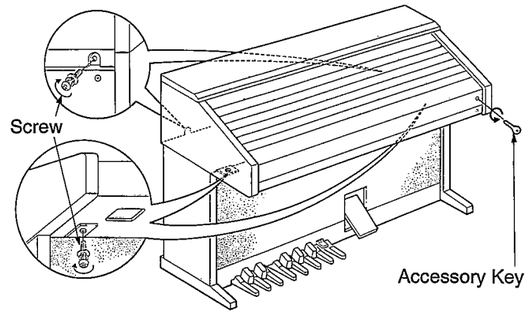
[Fig. 1]

2 Place the upper organ part on the lower organ part, making sure to fit the metal pieces together.



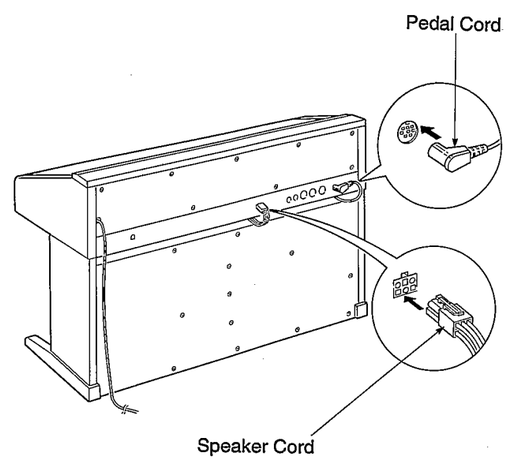
[Fig. 2]

3 Using the four screws removed in step 1, secure the upper organ part to the lower organ part as shown in figure. Unlock the cover with the accesory key.



[Fig. 3]

4 Connect the speaker cord and pedal cord as shown.



[Fig. 4]

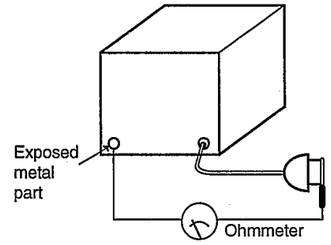
SAFETY PRECAUTION (This "safety precaution" is for the U.S.A. only)

● **Safety Precaution**

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only the manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc. .
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

● **Insulation Resistance Test**

1. Unplug the power cord and short the prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw heads, connectors, control shafts, handle brackets, etc. . Measurements should range from 4 MΩ to infinity for all exposed parts.



Resistance = 4MΩ to ∞

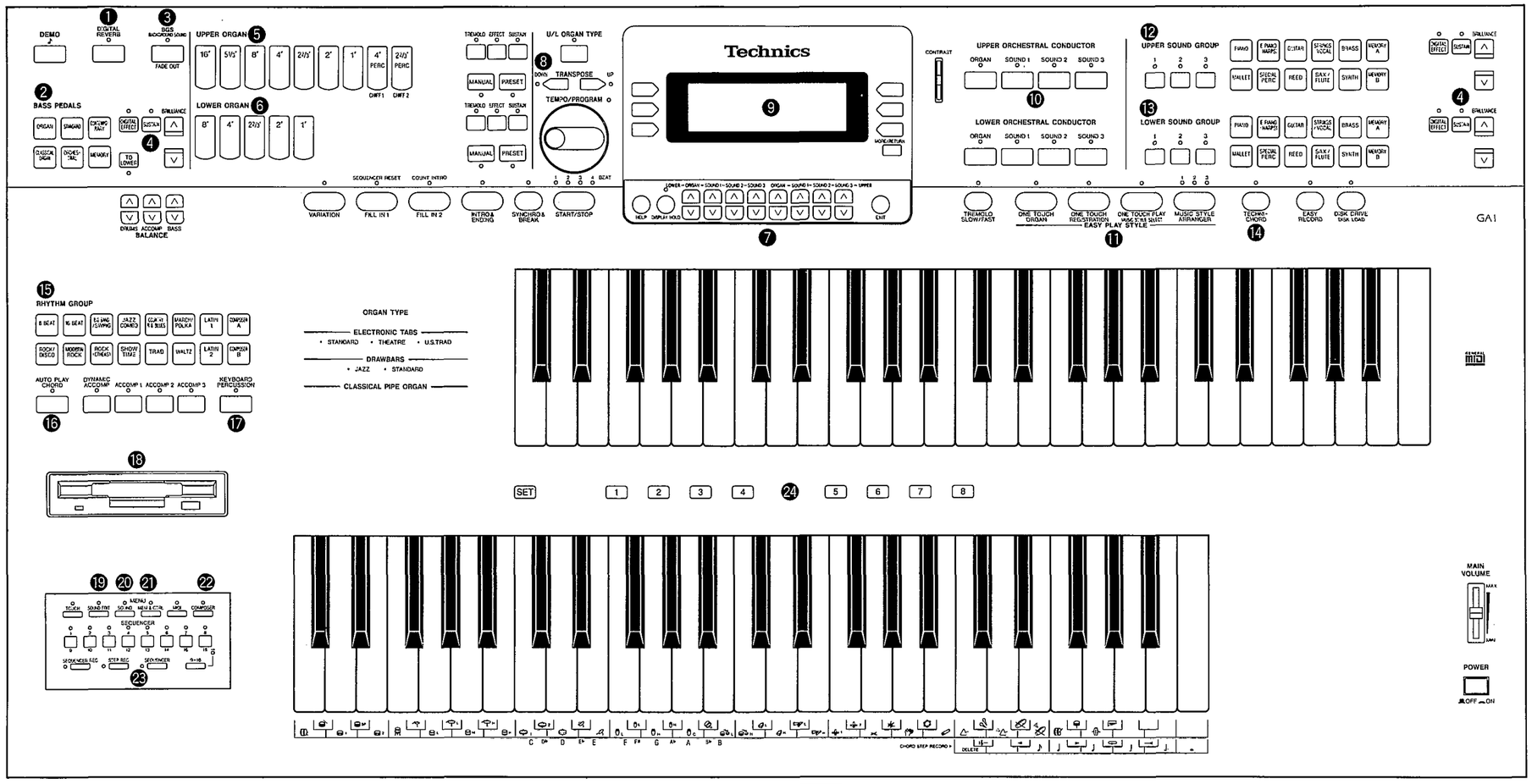
INITIAL SETTING

The initial setting function is used to return to the original factory settings, and to reset the customer settings and misoperations.

1. Press the **POWER** button to turn off the instrument.
2. While pressing the three lower left buttons in the **RHYTHM GROUP** section at the same time, turn the **POWER** button on again.

NOTE:
All stored data in the **SEQUENCER** and **COMPOSER** and other settings are initialized with this operation.

ARRANGEMENT OF CONTROL PANEL



BASIC FUNCTIONS

❶ DIGITAL REVERB
Add reverberation to the sound.

❷ BASS PEDALS
These are the sounds for the pedal keyboard. **MEMORY** button is for storing unique sounds you create yourself with the **SOUND EDIT** feature. The **BASS** sound volume is adjusted with the respective buttons in the separate **BALANCE** section.

❸ BGS
Five unique background sounds add special like and interest to your performance.

❹ Effects
The **DIGITAL EFFECT**, **SUSTAIN** and **BRILLIANCE** effects are turned on and off for the selected upper and lower keyboard sounds.

❺ UPPER ORGAN
Select the organ sounds to be played on the upper keyboard. The volume is adjusted with the respective buttons below the display.

❻ LOWER ORGAN
Select the organ sounds to be played on the lower keyboard.

❼ Balance
The volumes for the upper and lower keyboard parts are controlled with the corresponding buttons below the display. The **BASS** volume is adjusted with the **BASS** buttons in the separate **BALANCE** section.

❽ TRANSPOSE
C is the standard setting, but you can raise or lower the key of the entire organ with the two buttons. The transposed key is shown on the normal mode display.

❾ Display
In the normal mode, the display indicates the selected sounds, volumes, rhythm, tempo, and all other information about the panel settings. The display is also used for setting the various functions. The amazing number and range of settable functions makes the GA series organ truly an instrument which you can fashion to fit exactly your particular playing style and tastes. And finally, the display is your key to programming when using the **SOUND EDIT**, **COMPOSER** and **SEQUENCER** features of your organ. The **CONTRAST** is adjusted with the sliding control.

⑩ **ORCHESTRAL CONDUCTOR**
These buttons allow you to select groups of sounds, or parts, and their effects instantly. The upper and lower keyboard parts are selected respectively with the **UPPER** and **LOWER ORCHESTRAL CONDUCTOR.**

⑪ **EASY PLAY STYLE**
A simple operation provides automatic selection of the sounds, effects and various other panel settings which are suitable for the registration you chose.

⑫ **UPPER SOUND GROUP**
With this block of buttons, you select the sound for each of three sound parts. First you select a part (**1, 2** or **3**), and then you select one of the many preset sounds for that part. Store a different sound for each part. When a part is selected in the **UPPER ORCHESTRAL CONDUCTOR**, the sound you set for that part is selected for the upper keyboard. **MEMORY** buttons are for storing unique sounds you create yourself with the **SOUND EDIT** feature. The volume of each part is adjusted with the respective buttons below the display.

⑬ **LOWER SOUND GROUP**
Sounds are selected for the lower keyboard parts in the same way as for the **UPPER SOUND SELECT** parts. The lower keyboard sounds are used mostly for accompaniment.

⑭ **TECHNI-CHORD**
Chord notes played on the lower keyboard are added to melody notes played on the upper keyboard. Choose from four harmonic styles.

⑮ **RHYTHM GROUP**
Select one of the various preset rhythms and start it instantly with the **START/STOP** button. Other features which enhance the **RHYTHM** unit are **SYNCHRO & BREAK, INTRO & ENDING, FILL IN** and a foot switch. The volume is adjusted with the **DRUMS** buttons in the **BALANCE** section.

⑯ **AUTO PLAY CHORD**
Add an automatic accompaniment to your selected rhythm. A full chord and a bass note are automatically produced when you play a key on the lower keyboard. Play major, minor, seventh or minor seven chords and the bass note just by pressing one key. The volume for each part of the **AUTO PLAY CHORD (ACCOMP, BASS, DRUMS)** is adjusted with the respective buttons in the separate **BALANCE** section.

⑰ **KEYBOARD PERCUSSION**
One press of the **KEYBOARD PERCUSSION** button transforms your lower keyboard into a whole band of percussive instruments and special sounds. The keys are picture-coded for quick and easy selection.

⑱ **Disk Drive**
The Disk Drive allows you to store up to 20 performances on a 3.5-in. 2HD, 2DD memory disk.

⑲ **SOUND EDIT functions**
With this feature you select a preset sound, modify it until it sounds just the way you like it, and then store it in one of the memory locations. Edit and store many sounds for each of the **UPPER** and **LOWER SOUND SELECT** sections and **BASS** sounds.

⑳ **SOUND functions**
Turning on this button readies the display for use as a controller to preset sounds, effects, volume, and mode setting for each part.

㉑ **MEMORY & CONTROL functions**
The settable functions in this mode include memory initialization, **TECHNI-CHORD** harmony style, tuning, scale-effect, **PANEL MEMORY** range, glide pitch-change, vibrato depth, switch assign, and more.

㉒ **COMPOSER**
Create original rhythm patterns, either in real-time or with the step method, or modify preset rhythms. Store up to 12 new rhythms in the reserved memory locations for instant recall as you play.

㉓ **SEQUENCER**
With this feature you can separately play and store the parts for an entire tune. Then have the hole ensemble performance played back automatically. This is a true 8-track sequencer, with full real-time recording, step recording and editing features.

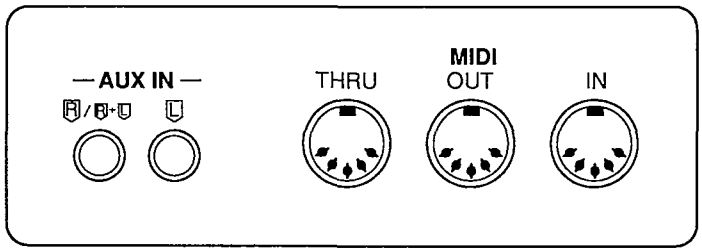
㉔ **PANEL MEMORY**
Set up the sounds and effects for the upper, lower and pedal keyboards, and then store them in these 8 buttons for instant recall as you play. You can expand the range of the storable settings to include rhythm selection, tempo setting and more.

㉕ **Glide control**
Lower the pitch of the organ by one half-tone or whole tone by pressing the left foot switch. This is used, for example, to get the Hawaiian guitar effect.

㉖ **Expression pedal**
Increase and decrease the loudness of all the organ sound as you play to add expression to the music.

TERMINALS

(on the rear panel)



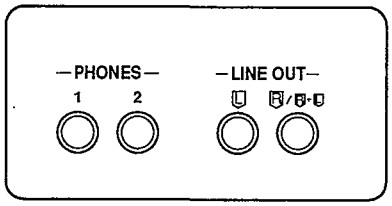
AUX IN (input level 500 mV, 33 kΩ)
Other instruments such as a keyboard can be connected to the organ so that the signal is output from the organ. This terminal runs through the expression pedal circuit and you can control the volume of the connected instrument with the expression pedal. To receive monaural sound, connect instruments to the **R/R+L** terminal. (In this case, do not use the **L** terminal.)

MIDI (Musical Instrument Digital Interface)
MIDI is the standard specification that enables connection to equipment such as synthesizers and personal computers.

IN : The terminal that receives data from external equipment.
OUT : The terminal that transmits data from this instrument to external equipment.
THRU: The terminal that transfers data from the **IN** terminal directly to other equipment.

- Use a 5-pin DIN cord (less than 15 m long) for these connections.

(Beneath the right side of the lower keyboard)



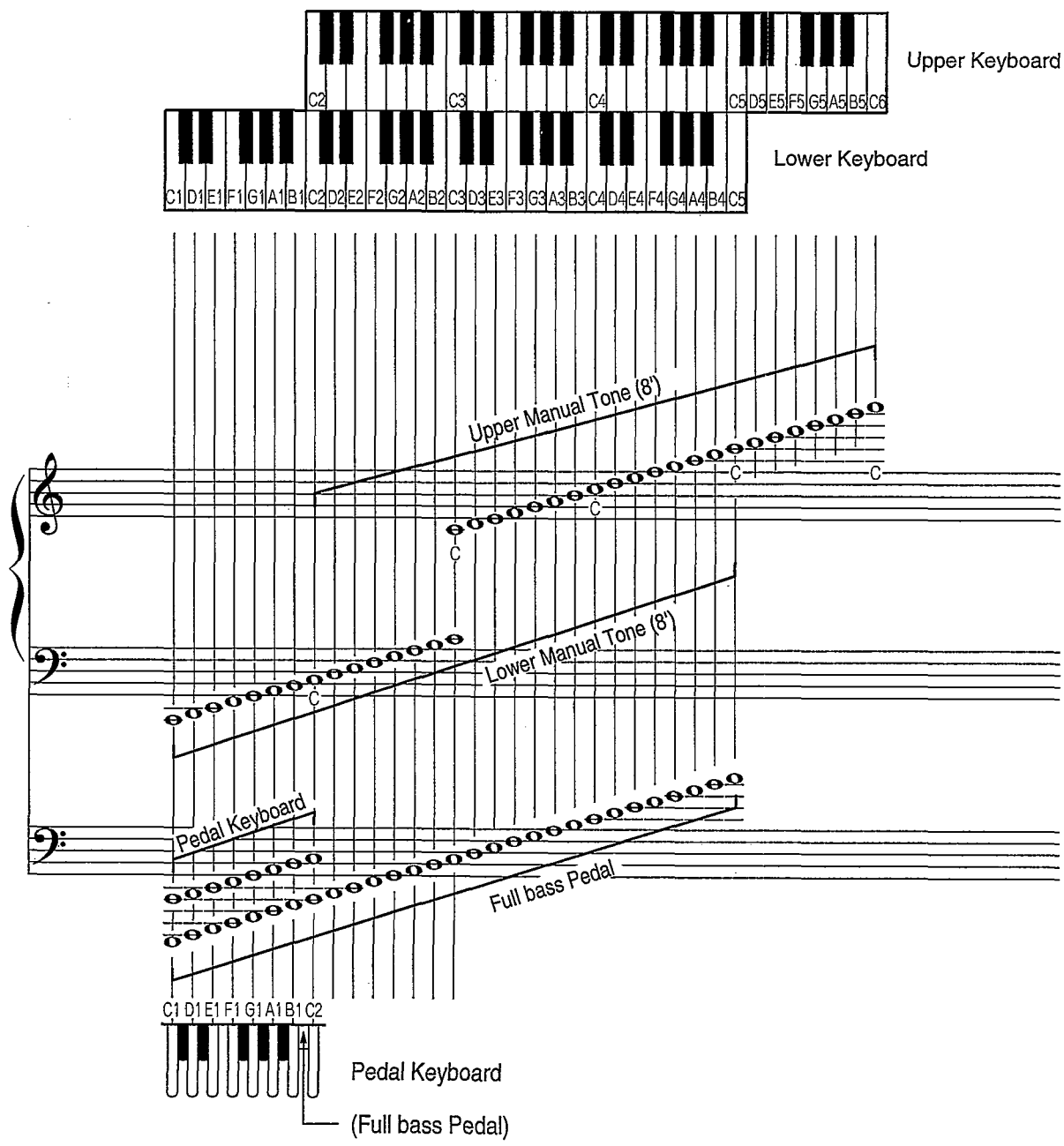
PHONES 1, 2
For silent practice, headphones may be used. When plugged in, this instrument's speaker system is automatically switched off, and the sound is heard only through the headphones.

LINE OUT (output level 1.0 Vrms, 600 Ω)
By connecting an external high-power amplifier, the sound can be reproduced at a high volume. To output monaural sound, connect the external equipment to the **R/R+L** terminal. (Do not connect the **L** terminal.)

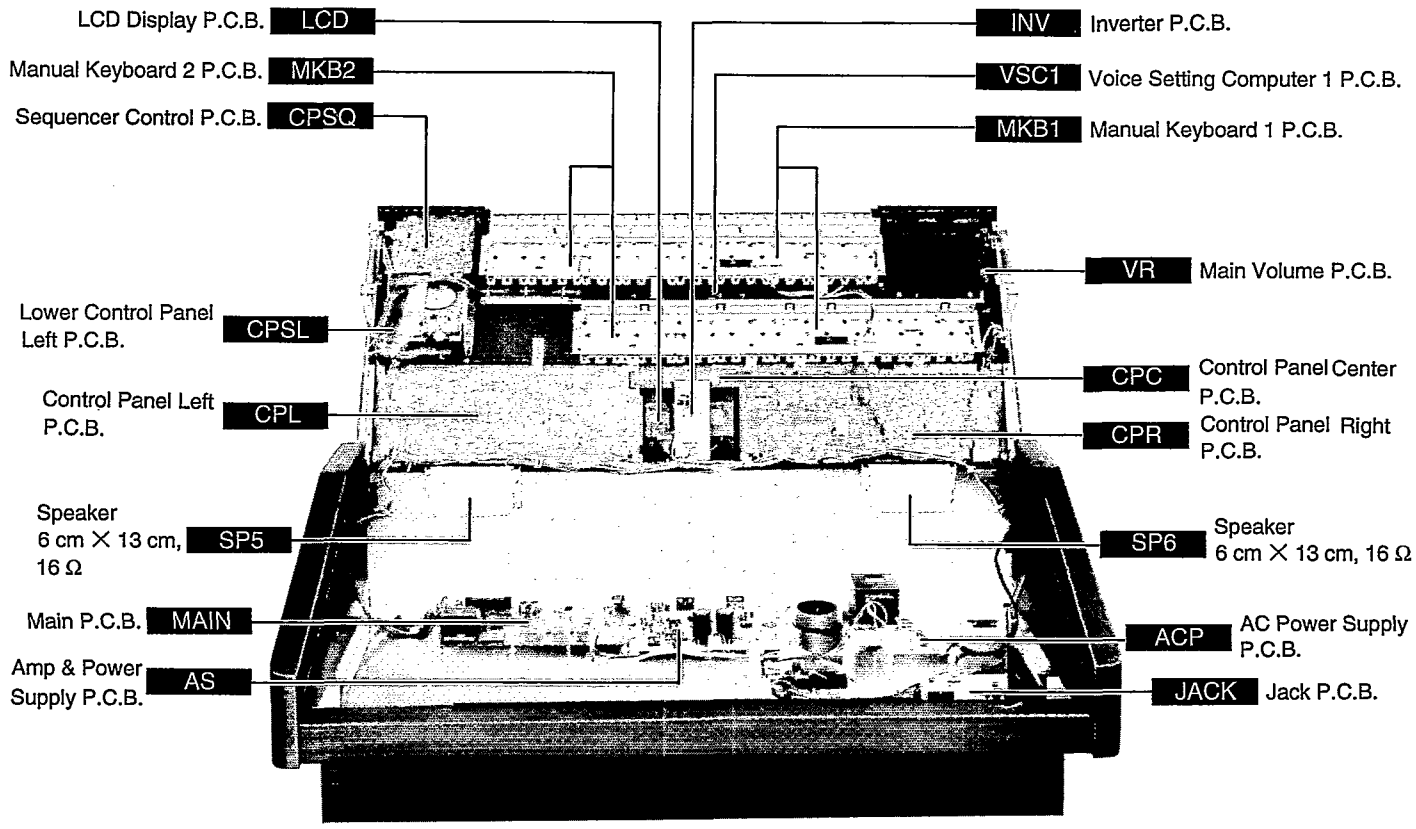
KEYBOARD RANGES

Upper Keyboard: 49 Keys (4 Octaves)
Lower Keyboard: 49 Keys (4 Octaves)
Pedal Keyboard:13 Keys (1Octave) + Full bass Pedal

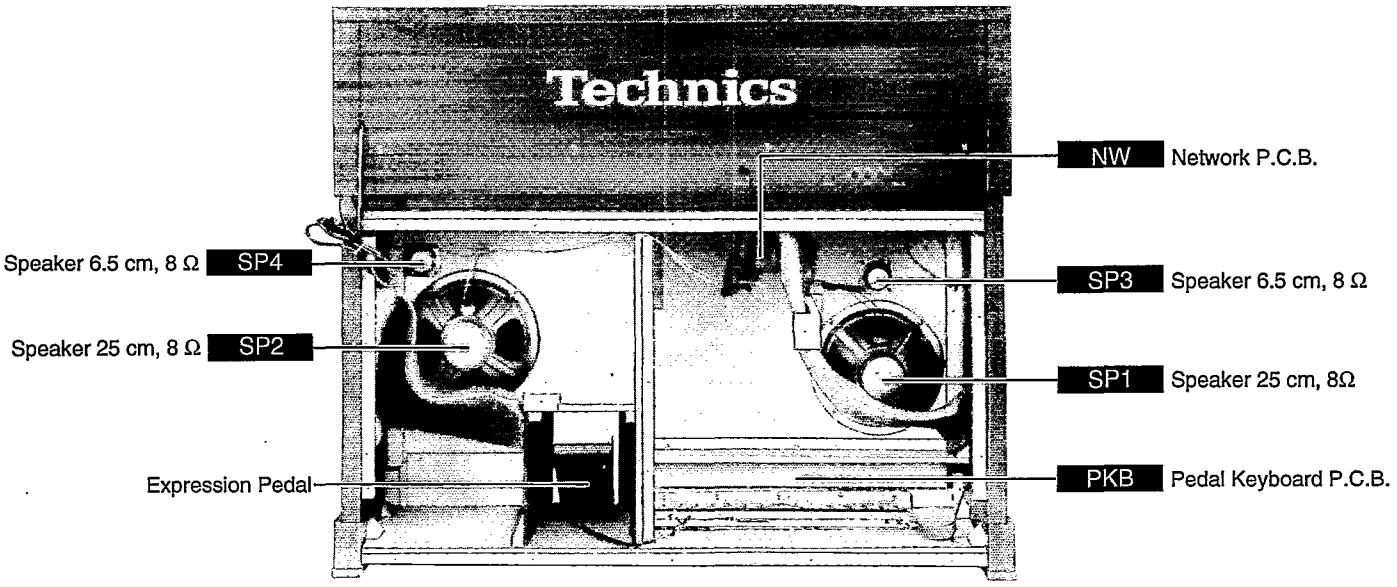
*An 8-foot compass is used for each keyboard


C2 C3 C4 C5 D5 E5 F5 G5 A5 B5 C6
Upper Keyboard
C1 D1 E1 F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Lower Keyboard
Upper Manual Tone (8')
Lower Manual Tone (8')
Pedal Keyboard
Full bass Pedal
C1 D1 E1 F1 G1 A1 B1 C2
Pedal Keyboard
(Full bass Pedal)

PARTS LOCATION


LCD Display P.C.B. LCD
Manual Keyboard 2 P.C.B. MKB2
Sequencer Control P.C.B. CPSQ
INV Inverter P.C.B.
VSC1 Voice Setting Computer 1 P.C.B.
MKB1 Manual Keyboard 1 P.C.B.
VR Main Volume P.C.B.
Lower Control Panel Left P.C.B. CPSL
CPC Control Panel Center P.C.B.
Control Panel Left P.C.B. CPL
CPR Control Panel Right P.C.B.
Speaker 6 cm × 13 cm, 16 Ω SP5
SP6 Speaker 6 cm × 13 cm, 16 Ω
Main P.C.B. MAIN
ACP AC Power Supply P.C.B.
Amp & Power Supply P.C.B. AS
JACK Jack P.C.B.

[Photo-1]

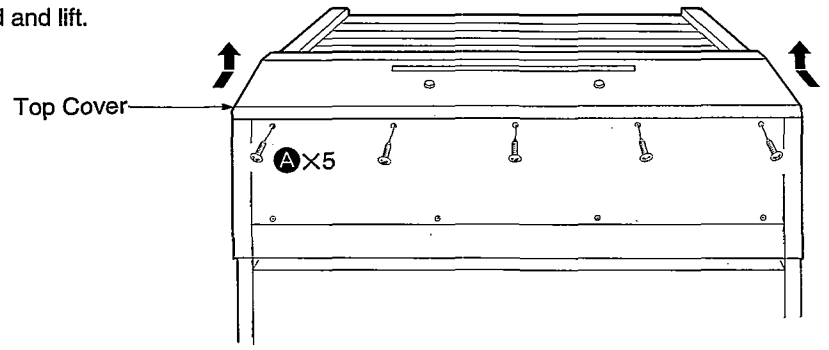

Technics
NW Network P.C.B.
Speaker 6.5 cm, 8 Ω SP4
SP3 Speaker 6.5 cm, 8 Ω
Speaker 25 cm, 8 Ω SP2
SP1 Speaker 25 cm, 8Ω
Expression Pedal
PKB Pedal Keyboard P.C.B.

[Photo-2]

DISASSEMBLY INSTRUCTIONS

1 Removing the top cover

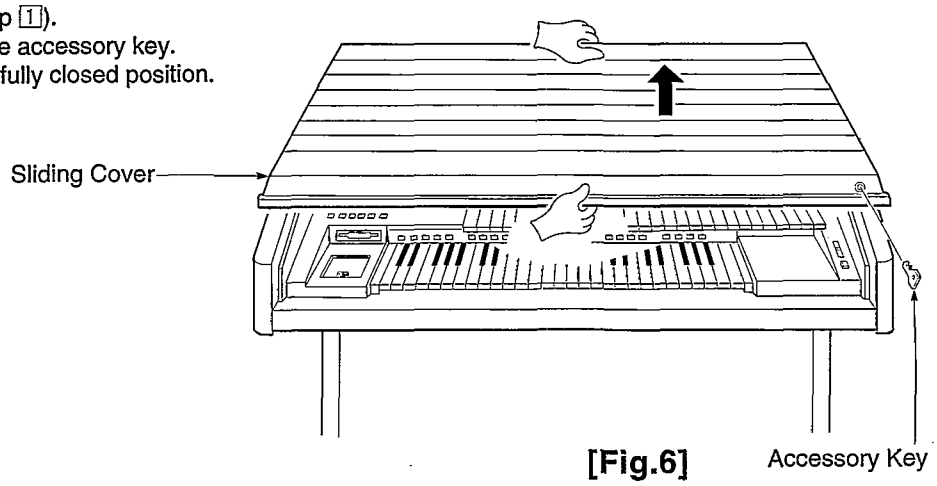
1. Remove the top cover holding screws located on the rear board (Ⓐ 5 pcs.).
2. Remove the top cover, sliding it forward and lift.



[Fig.5]

2 Removing the sliding cover

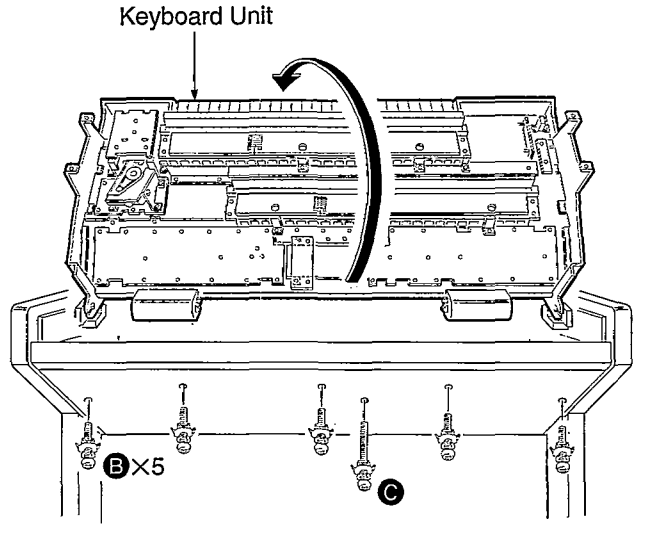
1. Remove the top cover (see Step 1).
2. Unlock the sliding cover with the accessory key.
3. Remove the sliding cover in its fully closed position.



[Fig.6]

3 Opening the control panel with keyboard unit

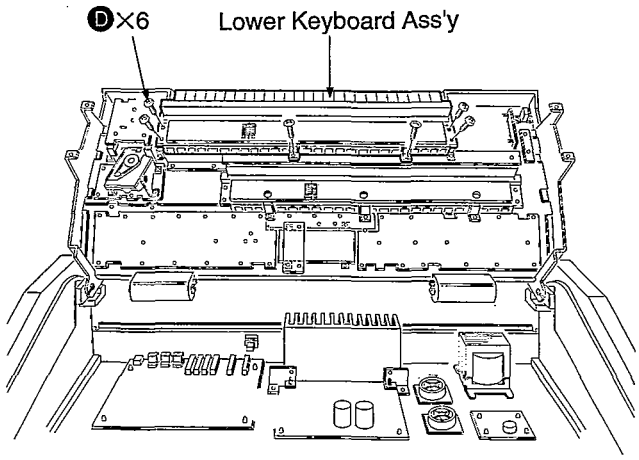
1. Remove both top cover and sliding cover (see Steps 1 and 2).
2. Remove the control panel holding screws located under the upper cabinet (Ⓑ 5 pcs. and Ⓒ 1 pc.).
3. The control panel with keyboard unit can now opened upwards.



[Fig.7]

4 Removing the lower keyboard ass'y

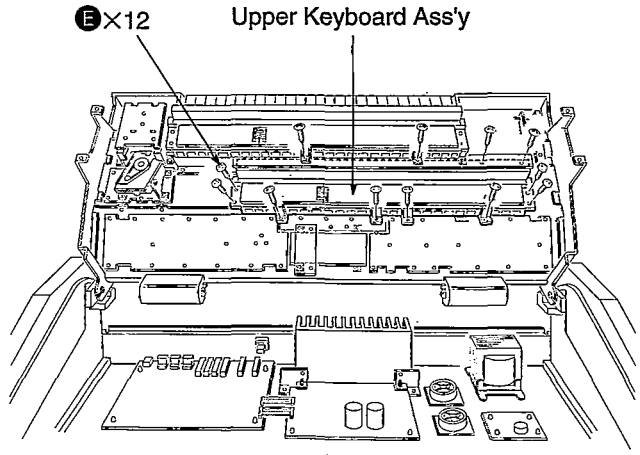
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the lower keyboard ass'y holding screws (Ⓓ 6 pcs.).
3. The lower keyboard ass'y can be removed.



[Fig.8]

5 Removing the upper keyboard ass'y

1. Open the control panel with keyboard unit (see Step 3).
2. Remove the upper keyboard ass'y holding screws (Ⓔ12 pcs.).
3. The upper keyboard ass'y can be removed.

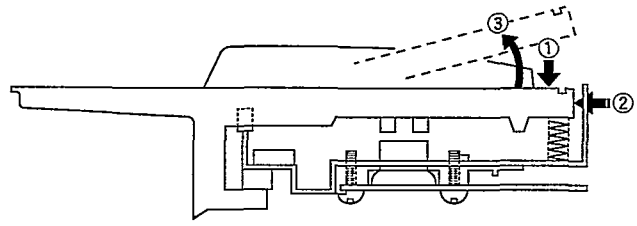


[Fig.9]

6 Removing the keys (s)

1. Remove the keyboard ass'y (see Steps 4 or 5).
2. Press downward on the rear of the key (Fig.10-①).
3. While pressing downward on the rear of the key, push the key forward and release it from the chassis (Fig.10-②.).
4. Lift the key and remove it from the cahssis (Fig.10-③.).

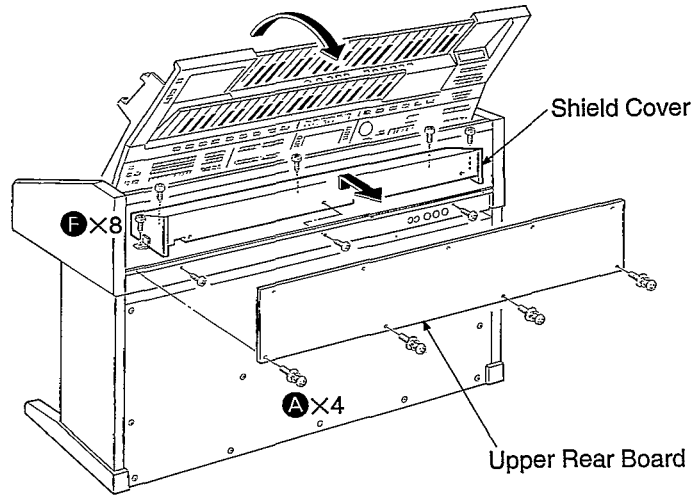
NOTE:
To remove a black key, the white key to either side of it should be removed first.



[Fig.10]

7 Removing the shield cover

1. Open the control panel with keyboard unit (see Step 3).
2. Remove the upper rear board holding screws (Ⓐ 4 pcs.).
3. Remove the shield cover holding screws (Ⓕ 8 pcs.).
4. Remove the shield cover toward the rear.



[Fig.11]

8 Removing the MAIN, AS and ACP P.C.B.

・Open the control panel with keyboard unit (see Step 3).

MAIN P.C.B.

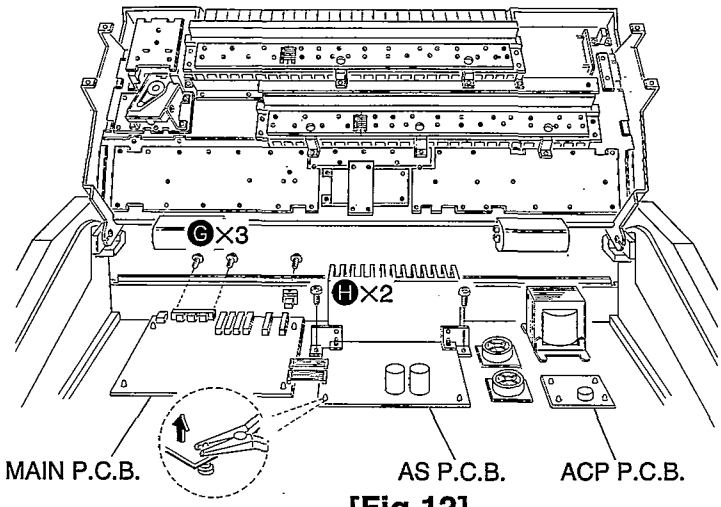
1. Remove the MAIN P.C.B. mounting screws (G 3 pcs.).
2. Release the claws of the P.C.B. holder.

AS P.C.B.

1. Remove the AS P.C.B. mounting screws (H 2 pcs.).
2. Release the claws of the P.C.B. holder.

ACP P.C.B.

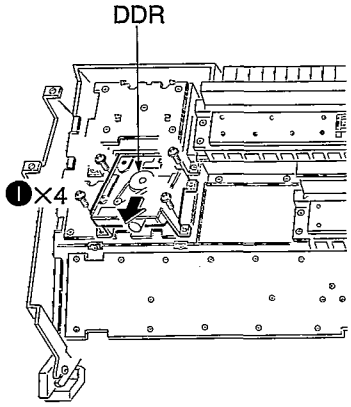
・Release the 4 claws of the P.C.B. holder to remove the ACP P.C.B.



[Fig.12]

9 Removing the digital disk recorder (DDR)

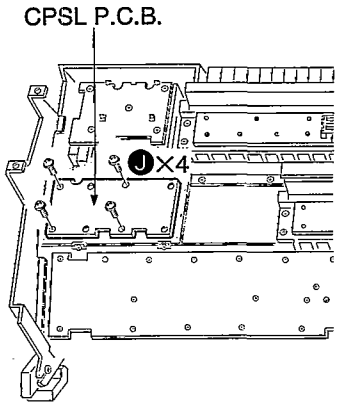
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the DDR holding screws (I 4 pcs.).



[Fig.13]

10 Removing the CPSL P.C.B.

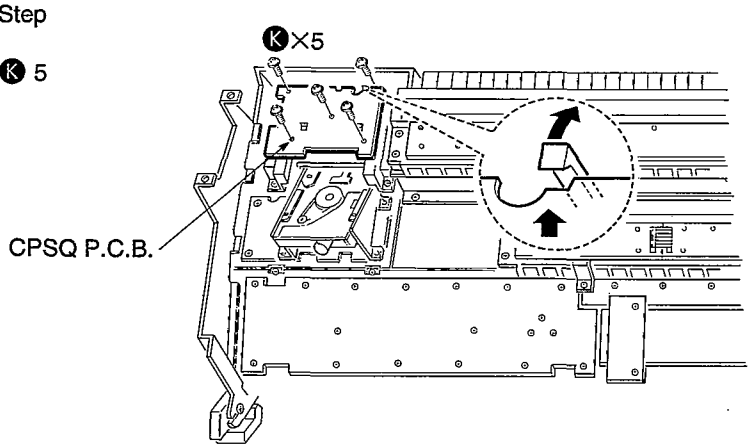
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the DDR (see Step 9).
3. Remove the CPSL P.C.B. mounting screws (J 4 pcs.).



[Fig.14]

11 Removing the CPSQ P.C.B.

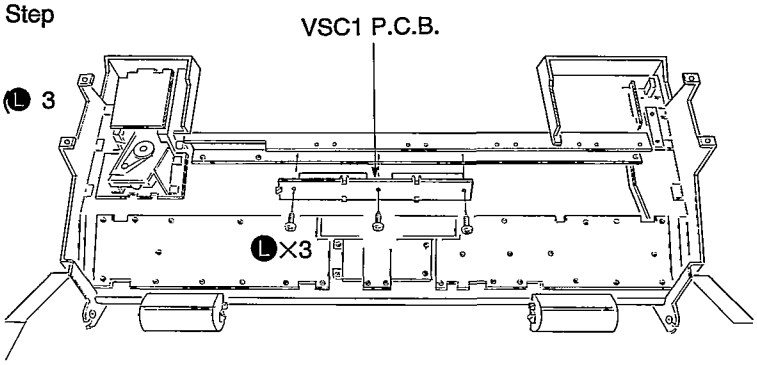
1. Open the control panel with keyboard unit (see Step 3).
2. Remove the CPSQ P.C.B. mounting screws (K 5 pcs.).
3. Release the claws of the P.C.B. holder.



[Fig.15]

12 Removing the VSC 1, 2 P.C.B.

1. Open the control panel with keyboard unit (see Step 3).
2. Remove the upper keyboard (see Step 5).
3. Remove the VSC 1 P.C.B. mounting screws (L 3 pcs.).



[Fig.16]

13 Removing the speakers

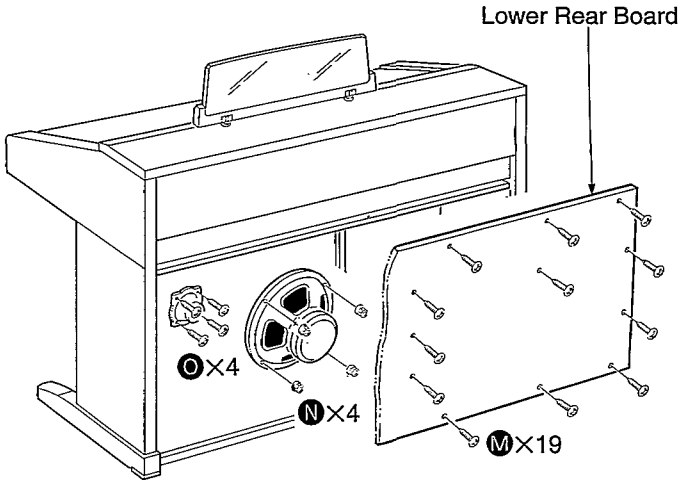
- Remove the lower rear board mounting screws (M 19 pcs.).

25 cm speakers

- Remove the 25 cm speaker mounting nuts (N 8 pcs.).

6.5 cm speakers

- Remove the 6.5 cm speakers mounting screws (O 4 pcs.).



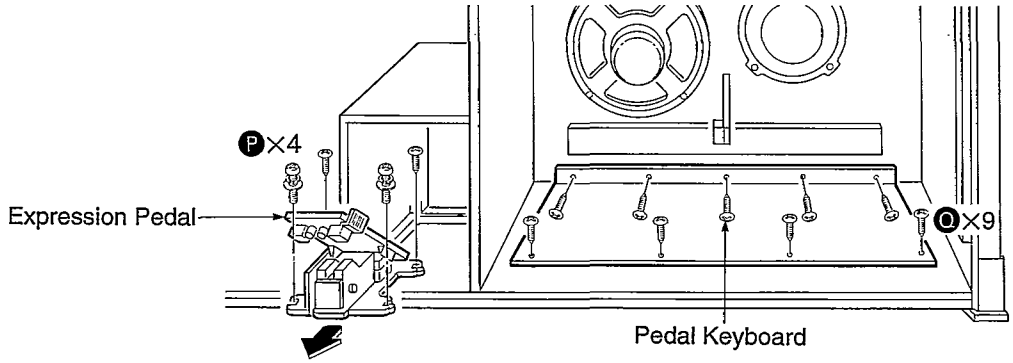
[Fig.17]

14 Removing the expression pedal

1. Remove the lower rear board (see Step 13).
2. Remove the expression pedal mounting screws (P 4 pcs.).

15 Removing the pedalkeyboard

1. Remove the lower rear board (see Step 13).
2. Remove the pedal keyboard mounting screws (Q 4 pcs.).
3. Tilt the entire unit a little to toward to the rear very carefully for easier to take the pedal keyboard out from the bottom wood board.



[Fig.18]

ERROR DISPLAY

The following messages on the display indicate that a mistake has been made in using the functions.

No.	Contents
00	The data on the disk that you are using is for a different product.
01	An error has occurred while the disk was loading. Please try again!
02	There is no disk in the Disk Drive.
03	The file that you tried to load is empty.
05	An error has occurred while the disk was saving. Please try again!
06	The disk that you are using is write protected. Please remove the write protection and try again.
07	The disk that you are using is full. Please use another disk.
08	An error has occurred while the disk was formatting. The disk that you are using may be faulty. Please try formatting another disk.
10	The data is already copy protected.
11	The password that you entered is incorrect.
20	A problem has occurred with your **SEQUENCER** Data. This might be due to a damaged or faulty disk.
21	Memory full
22	It is necessary to press PUNCH OUT to complete this procedure.
23	It is impossible to change the time signature because it has already been set in the existing tracks.
24	A rhythm track already exists. It is impossible to assign two tracks to rhythm.
25	It is only possible to change the velocity on a melody track.
26	It is only possible to merge melody tracks. Tracks such as rhythm, chord and control cannot be merged.

No.	Contents
27	It is only possible to copy melody tracks. Tracks such as rhythm, chord and control cannot be copied.
28	This song is too long to be saved as a MIDI file.
29	The MIDI file that you have tried to load exceeds the memory capacity of this organ and cannot be played. The **SEQUENCER** memory has been cleared.
30	It is not possible to change the time signature or measure length of a **COMPOSER** pattern after it has been recorded. If you want to proceed, you must first clear the entire **COMPOSER** pattern.
31	The time signature of the pattern from which you are copying is different from the **COMPOSER** memory that you are using. Either: Change the time signature of the **COMPOSER** memory or: Copy from a pattern that has the same time signature.
32	Memory full
40	The Identification (ID) code of the system exclusive data received by this organ is for a different product.
41	An error has occurred during system exclusive data reception. The data from the transmitting device may be incomplete. Please try again.
42	An error has occurred during system exclusive transmission. The data has not been received correctly. Please try again.
43	The file that you are trying to load was saved on a previous Technics Organ. It is only possible to load using the "ALL" option.
44	It is impossible to edit a Drum Kit. Please select a different sound from any group except Keyboard Percussion.

SYMPTOMS WHICH APPEAR TO BE SIGNS OF TROUBLE

The following changes in performance may occur in Technics organ but do not indicate trouble.

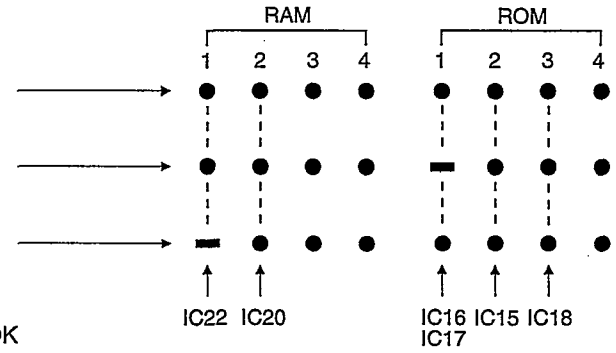
	Phenomenon	Remedy
Sounds and effects	The buttons, keys, etc. malfunction.	• Turn off the **POWER** button once, then turn it on again. If this procedure is not successful, turn off the **POWER** button once. Then, while pressing the three lower left buttons in the **RHYTHM GROUP** section (**ROCK/DISCO**, **MODERN ROCK** and **ROCK [OTHERS]**) at the same time, turn the **POWER** button on again. (Note that, in this case, all programmable settings, functions and memories return to their factory-preset status.)
	No sound is produced when the keys are pressed.	• The **MAIN VOLUME** is at the minimum setting. Adjust the volume with the **MAIN VOLUME** control. • The volumes for the selected parts are set to the minimum levels. Use the balance buttons to set the volumes of the relevant parts to appropriate levels. • The local control for a part performed on the keyboard is set to OFF. Set the local control to ON.
	The volume is very low when the keyboard is played.	• The volume setting in the **SEQUENCER** contents is very low. Follow the **INITIAL** procedure to reset the settings.
	Some sounds cannot be selected.	• When the GENERAL MIDI mode is set to ON, the sounds which can be selected and operations which can be exectuted are limited. Set the GENERAL MIDI mode to OFF to return the instrument to its normal operation.
	Only percussive instrument sounds are produced when the lower keyboard is played.	• The **KEYBOARD PERCUSSION** button is on.
	The knee lever, foot switch(es) and full bass pedal do not operate properly. For example, the knee lever does not turn the **SUSTAIN** function on and off.	• Any functional on and off operation other than the factory presets are storable in these switches. For example, the knee lever can turn the **TECHNI-CHORD** on and off. Store your favorite functions to turn them on and off.
Rhythm	The rhythm does not start.	• The **DRUMS** volume is set to the minimum level. Use the balance buttons to set the **DRUMS** volume to an appropriate level. • In the **RHYTHM GROUP** section, a rhythm in **COMPOSER A** or **COMPOSER B** with no stored pattern was selected. Select a different rhythm. • A **SEQUENCER** track button is on. When you are not playing back the **SEQUENCER** performance, turn off the track buttons. • CLOCK is set to MIDI. Set CLOCK to INTERNAL. • The rhythm does not work when the GENERAL MIDI mode is set to ON. Set the GENERAL MIDI mode to OFF.

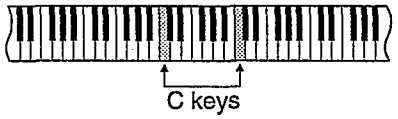
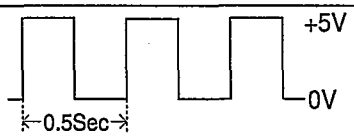
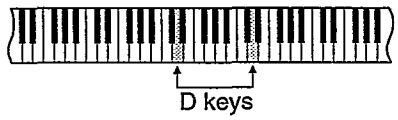
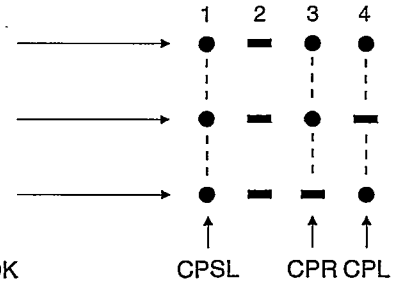
	Phenomenon	Remedy
SEQUENCER	Storage is not possible.	• The remaining memory capacity of the **SEQUENCER** is 0. Follow the SONG CLEAR or TRACK CLEAR procedure to erase the memory.
	Multi-track storage is not possible.	• The playback track has been selected, but the **START/STOP** button has not been pressed. A flashing track indicator shows the track which is ready for recording, and a lit track indicator shows a track which is ready for playback. To record one track while listening to another (playback) track, press the **START/STOP** button to begin playback.
	The playback measure indication is different from when the performance was recorded.	• The number of measures corresponds to the time signature of the rhythm selected at the start of recording. To change the rhythm in the middle of the song, record the rhythm change in the RHYTHM part.
AUTO PLAY CHORD	No sound is produced for the automatic accompaniment.	• In the **RHYTHM GROUP** section, a rhythm in **COMPOSER A** or **COMPOSER B** with no stored pattern was selected. Select a different rhythm.
	No sound is produced for the automatic accompaniment, or only the sounds of some parts are produced.	• Some or all of the **ACCOMP 1**, **2** and **3** buttons are turned off. Press the buttons to turn them on.
COMPOSER	Storage is not possible.	• The remaining memory capacity of the **COMPOSER** is 0.
	Setting the time signature and number of measures is not possible.	• The time signature and number of measures cannot be changed for a pattern which is currently recorded in the **COMPOSER**. If you wish to change the time signature and/or measure data, first follow the procedure to clear the memory.
	The playback timing of the rhythm pattern is different from the timing with which it was recorded.	• The QUANTIZE function was on when the pattern was recorded and the timing was automatically corrected. Set the quantize level to a smaller note unit or to OFF when recording.
Disk Drive	The Disk Drive produces a noise during recording or playback.	• This occurs when the Disk Drive is reading a disk. It does not indicate a problem.
	When the procedure to load from a disk is performed, the contents of the keyboard memory are erased.	• When performing the load operation from a disk, the keyboard memory changes to that of the data loaded from the disk. If you wish to preserve a song which is stored in the keyboard memory, save it on a disk before performing the load procedure.
Other	Noise from a radio or TV can be heard.	• This sometimes occurs when electrical equipment such as a radio or TV is used near the instrument. Try moving such electrical equipment further away from the instrument. • The sound may be coming from a nearby broadcast station or amateur radio station. If the sound is bothersome, consult your dealer or service center.
	The cabinet becomes warm during use.	• This instrument has a built-in power source that heats the cabinet to some degree. This is not an indication of trouble.

ABOUT THE SELF-DIAGNOSTIC FUNCTION

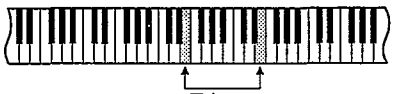
This model has some self-diagnostic capabilities. When set to the self-diagnostic mode, operation of various components can be verified by following the procedures in the chart below.

<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td>1</td><td>MAIN</td><td>RAM (IC20, 22), ROM (IC15-18) check</td><td>1. Connect the CHECKING DEVICE (refer to page I-18) to CN 1 on the MAIN P.C.B., and turn on the CHECKING DEVICE switch.
2. Turn on the power switch.</td></tr>
<tr><td colspan="4">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 8 times. The first 4 flashes are for the RAM check, and the latter 4 flashes are for the ROM check. The order of the LED flashes corresponds to the respective IC numbers as shown below. If an IC is defective, the corresponding flash time is longer.

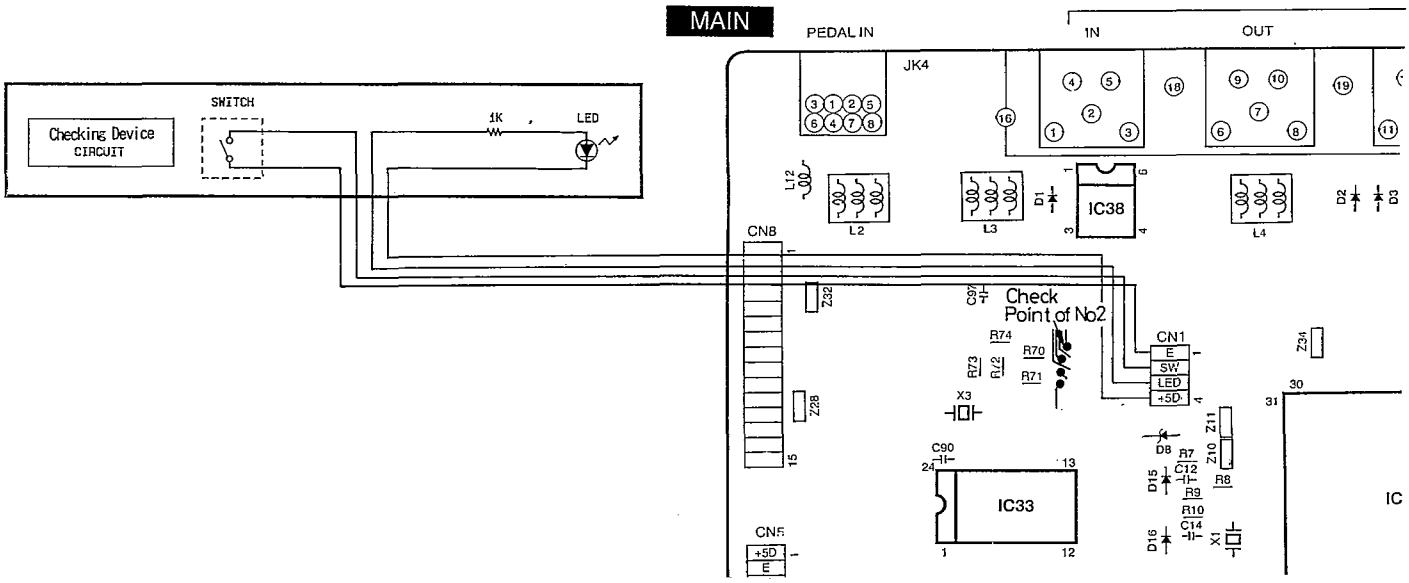
Examples
1. RAM OK, ROM OK
2. RAM OK, ROM (IC16,17) defective
3. RAM (IC22) defective, ROM OK
 

NOTE : ● indicates short flash time = OK
▬ indicates long flash time = Defective</td></tr>
<tr><td>2</td><td>MAIN</td><td>V53 Gate Array (IC2) check</td><td>Press and hold the two C keys shown below, and then turn on the power switch.
Lower Keyboard
 
</td></tr>
<tr><td colspan="4">Monitor pins (refer to page I-18) on oscilloscope, and check whether data (see figure) is output.
 
</td></tr>
<tr><td>3</td><td>CPL
CPR
CPSL</td><td>Control panel CPU check</td><td>1. Connect the CHECKING DEVICE to CN 1 on the MAIN P.C.B. (The Checking Device switch should be off).
2. On the control panel, set all the sliding BALANCE controls to OFF.
3. Press and hold the two D keys shown below, and then turn on the power switch.
Lower Keyboard
 
</td></tr>
<tr><td colspan="4">When the power switch is turned on, the LED of the CHECKING DEVICE flashes 4 times. The order of the LED flashes corresponds to the CPU (IC) on the respective P.C.B.s as shown below. If an IC is defective, the corresponding flash time is longer.
1. OK
2. CPL CPU defective
3. CPR CPU defective
 

NOTE : ● indicates short flash time = OK
▬ indicates long flash time = Defective</td></tr>
</table>

<table>
<tr><th>No.</th><th>PCB</th><th>TEST MODE</th><th>Procedure</th></tr>
<tr><td>4</td><td>MAIN</td><td>Wave ROM check
MAIN : IC23, 24, 26, 27, 29</td><td>1.Press and hold the two E keys shown below, and then turn on the power switch.
2.Press the SYNTH PAD (LOWER SOUND GROUP) button.
Lower Keyboard 
E keys</td></tr>
<tr><td colspan="3">When set to the self-diagnostic mode, the Wave ROM outputs a sine wave. The Wave ROMs correspond to the keyboard keys as shown in the diagram to the right. When a key is pressed, the corresponding sine wave sound is produced. If no sound is produced, or if the sound is distorted, the Wave ROM corresponding to that key is defective.
• The key number indicates the Wave ROM number. (1:IC23, 2:IC24, 3:IC26, 4:IC27, 5:IC29)
Upper Keyboard
<table>
<tr><th>Key / Upper Conductor</th><th>C</th><th>C#</th><th>D</th><th>D#</th><th>E</th><th>F</th><th>F#</th><th>G - B</th></tr>
<tr><td>Upper Organ</td><td>1</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>Upper Sound 1</td><td>3</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td><td>4</td></tr>
<tr><td>Upper Sound 2</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td><td>5</td></tr>
</table>
</td></tr>
<tr><td>5</td><td>CPL
CPR
CPSQ</td><td>LED & SW check</td><td>Press and hold the two F keys shown below, and then turn on the power switch.
Lower Keyboard
F keys</td></tr>
<tr><td colspan="3">All the LEDs turn off after lighting once. Confirm that all the LEDs light.</td></tr>
<tr><td>6</td><td>LCD</td><td>LCD Display check</td><td>Press and hold the two G keys shown below, and then turn on the power switch.
Lower Keyboard
G keys</td></tr>
<tr><td colspan="3">All dots of the LCD screen light for 10 seconds, after which 10 different displays appear in succession.</td></tr>
</table>

■ Connection between serving CHECKING DEVICE and MAIN P.C.B.



MIDI IMPLEMENTATION CHART

Organ [SX-GA1] **(Transmitted)**

Function		U.SOUND1,2,3, L.SOUND2,3, PART8～15	BASS (PEDAL)	L. SOUND1	K.B PERC (PART16)	U. ORGAN	L. ORGAN	ACMP1, ACMP2, ACMP3, BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	–	–	
Note Number		0-119	0-119	0-119	0-119	0-119	0-119	0-119	0-119	0-119	–	Changes depending on the position of the transpose control,octave shift,and drums type.
	True voice	–	–	–	–	–	–	–	–	–	–	
Velocity	Note ON	○	○	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	×	×	–	
	Ch's	○×*	○×*	○×*	×	×	×	×	×	×	–	
Pitch Bender		○*	○*	○*	×	○	○	○*	×	×	×	
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	bank select MSB, LSB
	1	○*	○*	○*	×	×	×	○*	×	○×*	×	modulation
	6,38	○×*	○×*	○×*	×	×	×	×	×	×	×	data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	volume
	10	○×*	○×*	○×*	×	×	×	×	×	×	×	panpot
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	○×*	expression
	64	○×*	○×*	○×*	×	○×*	○×*	○×*	×	×	×	sustain
	80	×	×	○×*	×	×	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	×	○×*	×	×	intro, fill in, ending
	91	○×*	○×*	○×*	○×*	×	×	×	×	○×*	○×*	reverb
	92	×	×	×	×	○×*	○×*	×	×	×	×	tremolo
	93	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	digital effect
	94	○×*	×	○×*	×	○×*	○×*	×	×	×	×	DSP effect／effect
	100,101	○×*	○×*	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○×*	○	○	○	×	×	×	×	all sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	×	reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	Changes depending on program change mode and prog.cng to p.mem.
	True #	–	–	–	–	–	–	–	–	–	–	
System exclusive		○										
System common	Song Pos	○×*										
	Song Sel	○×* (0-19)										
	Tune	×										
System Real Time	Clock	○										
	Commands	○×*										start／stop,continue
Aux Messages	Local ON／OFF	×	×	×	×	×	×	×	×	×	–	
	All notes OFF	×	×	×	×	×	×	×	×	×	–	
	Active Sense	○										
	Repeat	×										
Notes		○×*……Whether or not the data for each of these items is transmitted can be set. ○*……Transmitted during SEQUENCER playback and during rhythm performance.										

Mode 1: OMNI ON, POLY　　Mode 2: OMNI ON, MONO　　○:Yes

Mode 3: OMNI OFF, POLY　　Mode 4: OMNI OFF, MONO　　×:No

Organ [SX-GA1] **(Recognized)**

Function		U.SOUND1,2,3, L.SOUND2,3, PART8～15	BASS (PEDALS)	L. SOUND1	K.B PERC (PART16)	U. ORGAN	L. ORGAN	ACMP1, ACMP2, ACMP3, BASS	DRUMS	CHORD	CONTROL	Remarks
Basic Channel	Default	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	memorized
	Changed	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	1-16	
Mode	Default	3	3	3	3	3	3	3	3	3	3	OMNI OFF,POLY MODE
	Messages	×	×	×	×	×	×	×	×	×	×	
	Altered	–	–	–	–	–	–	–	–	–	–	
Note Number		0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	Changes depending on the position of the transpose control,octave shift,and drums type.
	True voice	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	–	
Velocity	Note ON	○	○	○	○	○	○	○	○	○	–	
	Note OFF	×	×	×	×	×	×	×	×	×	–	
After Touch	Key's	×	×	×	×	×	×	×	×	×	–	
	Ch's	○×*	○×*	○×*	○×*	×	×	×	×	×	–	
Pitch Bender		○×*	○×*	○×*	×	○	○	○×*	×	○×*	×	
Control Change	0,32	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	bank select MSB, LSB
	1	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	modulation
	6,38	○×*	○×*	○×*	×	×	×	×	×	×	×	data entry MSB, LSB
	7	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	volume
	10	○×*	○×*	○×*	×	×	×	×	×	×	×	panpot
	11	○×*	○×*	○×*	○×*	○×*	○×*	×	×	×	○×*	expression
	64	○×*	○×*	○×*	×	○×*	○×*	○×*	×	×	×	sustain
	80	×	×	○×*	×	×	×	×	×	×	×	auto play chord
	82	×	×	×	×	×	×	×	○×*	×	×	intro, fill in, ending
	91	○×*	○×*	○×*	○×*	×	×	×	×	○×*	○×*	reverb
	92	×	×	×	×	○×*	○×*	×	×	×	×	tremolo
	93	○×*	○×*	○×*	×	×	×	○×*	×	○×*	×	digital effect
	94	○×*	×	○×*	×	○×*	○×*	×	×	×	×	DSP effect／effect
	100,101	○×*	○×*	○×*	×	×	×	×	×	×	×	RPN LSB, MSB
	120	○	○	○	○	○	○	○	○	○	×	all sound off
	121	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	×	reset all controllers
Prog Change		○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	○×*	Changes depending on program change mode and prog.cng to p.mem.
	True #	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-127	0-21	
System exclusive		○										
System common	Song Pos	○×*										
	Song Sel	○×* (0-19)										
	Tune	×										
System Real Time	Clock	○										
	Commands	○×*										start／stop,continue
Aux Messages	Local ON／OFF	×	×	×	×	×	×	×	×	×	–	
	All notes OFF	○	○	○	○	○	○	○	○	○	–	
	Active Sense	○										
	Repeat	×										
Notes		○×*……Whether or not the data for each of these items is received can be set.										

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO ○:Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO ×:No

PRECAUTIONS BEFORE SERVICING

■ Precautions for measuring of the output waveforms.

1. The waveform was measured with a "National Digital Storage Oscilloscope VP-5730A". Therefore the waveforms of musical tone signals shown may differ somewhat due to the difference in the timing of triggering.
2. Since the 1/10 test probe is used, the indicated voltage value on the bottom part of each waveform photo is 1/10 of the actual value (e.g. 0.2 V/cm should be 2.0 V/cm).
3. To measure the waveforms, first set this unit to the self-diagnostic mode (refer to page I-18, No. 4). The Wave ROM output will then be output as a sine wave to facilitate the servicing check.

■ Important safety notice:

Components identified by a ⚠ mark have special characteristics impotant for safety.
When replacing any of these components, use only manufacture's specified parts.

■ Symbolic Marks

The symbolic marks for resistors and capacitors which used in this circuits are classified as following TABLE-1 and TABLE-2.

1. RESISTORS
   - Resistors without symbolic mark are FIXED CARBON FILM RESISTORS (ERD-type).
   - All resistors are 1/4 WATT, ±5 % TOLERANCE unless otherwise designated in schematic diagrams.

(TABLE-1)

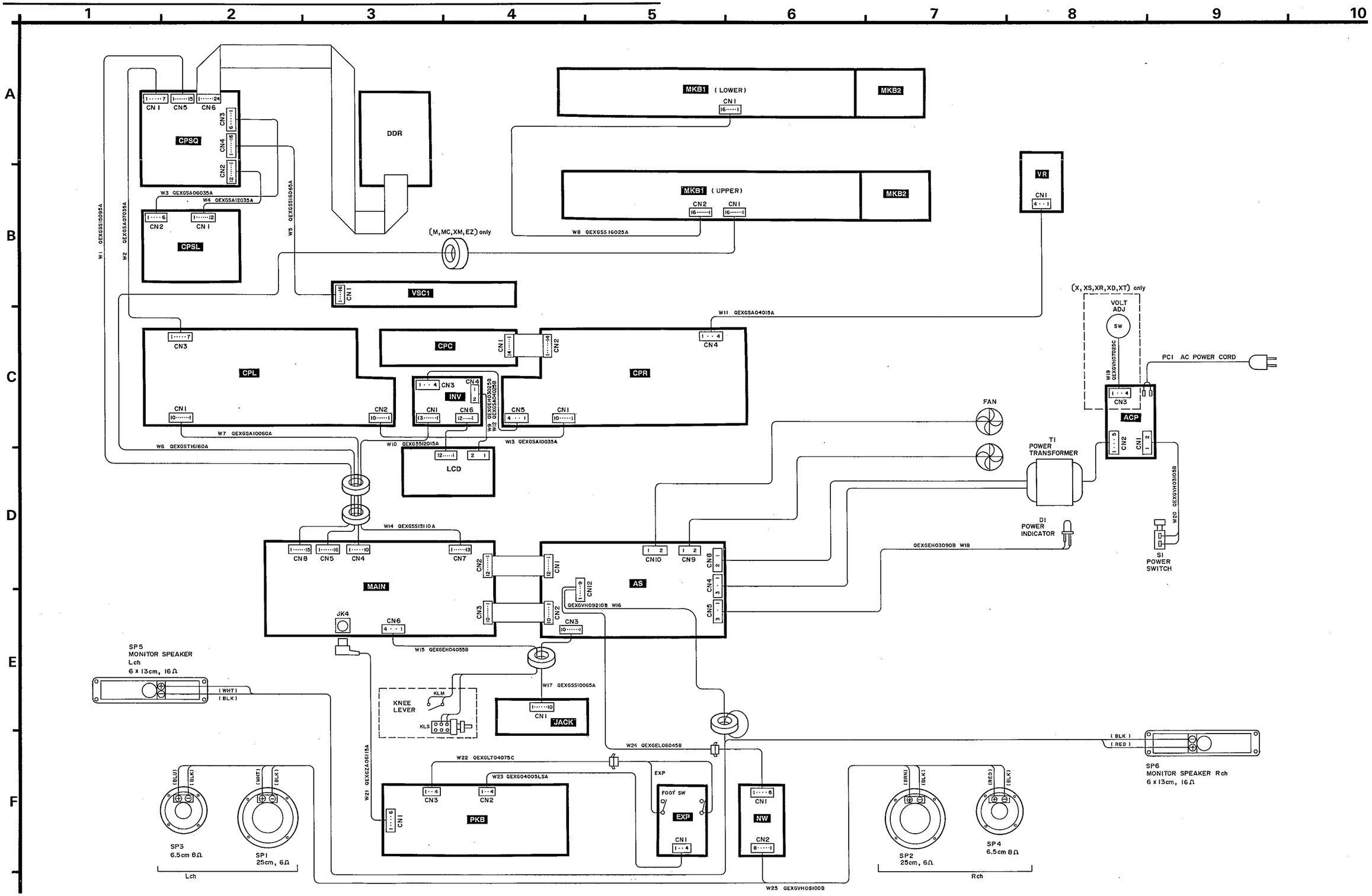
SYMBOL	SPECIFICATION	SYMBOL	SPECIFICATION
Ⓕ	Fixed Carbon Film Resistors " FLAME-PROOF " (ERD—F—type)	Ⓕ	Fixed Metal Film Resistors " FLAME-PROOF " (ERX—type)
Ⓕ	Fixed Wire Wound Resistors " FLAME-PROOF " (ERF—type)	[F]	Fuse Type Fixed Metal Oxide Film Resistors " FLAME-PROOF " (ERQ—type)
Ⓕ	Fixed Metal Oxide Film Resistors " FLAME-PROOF " (ERG—type)	[F]	Fuse Type Fixed Carbon Film Resistors " FLAME-PROOF " (ERD2FC—type)
Ⓖ	Fixed Metal Film Resistors (Precision and High Stability) (ERO—type)		

2. CAPACITORS
   - Capacitors without symbolic mark are POLYESTER CAPACITORS. (ECQM-type, ECQG-type, ±10 % Tolerance)
   - Polarized capacitors without symbolic mark are Aluminum Electrolytic Capapcitors. (ECEA-type, ±20 % Tolerance)

(TABLE-2)

SYMBOL	SPECIFICATION	TYPE
Ⓝ	Non-Polarized Electrolytic Capacitors	ECEA_KN_type
Ⓨ	Non-Polarized Electrolytic (for Network System)	ECEA_Y_type
Ⓣ	Tantalum Solid Electrolytic Capacitors	ECS_type
TF	Metalized Plastic Film Capacitors (TF Series)	ECQV_type
○	Temperature Compensating Ceramic Capacitors	ECC_type
	High-Dielectric Constant Ceramic Capacitors	ECK_type ECR_type
	Axial Lead Ceramic Capacitors	ECB_type
	Metalized Polyester Film Capacitors for Across the Line	ECQ_EW_type
	Aluminum Electrolytic Capacitors for Smoothing Circuit	ECES_type
	Multilayer Ceramic Chip Capacitors	ECUV_type

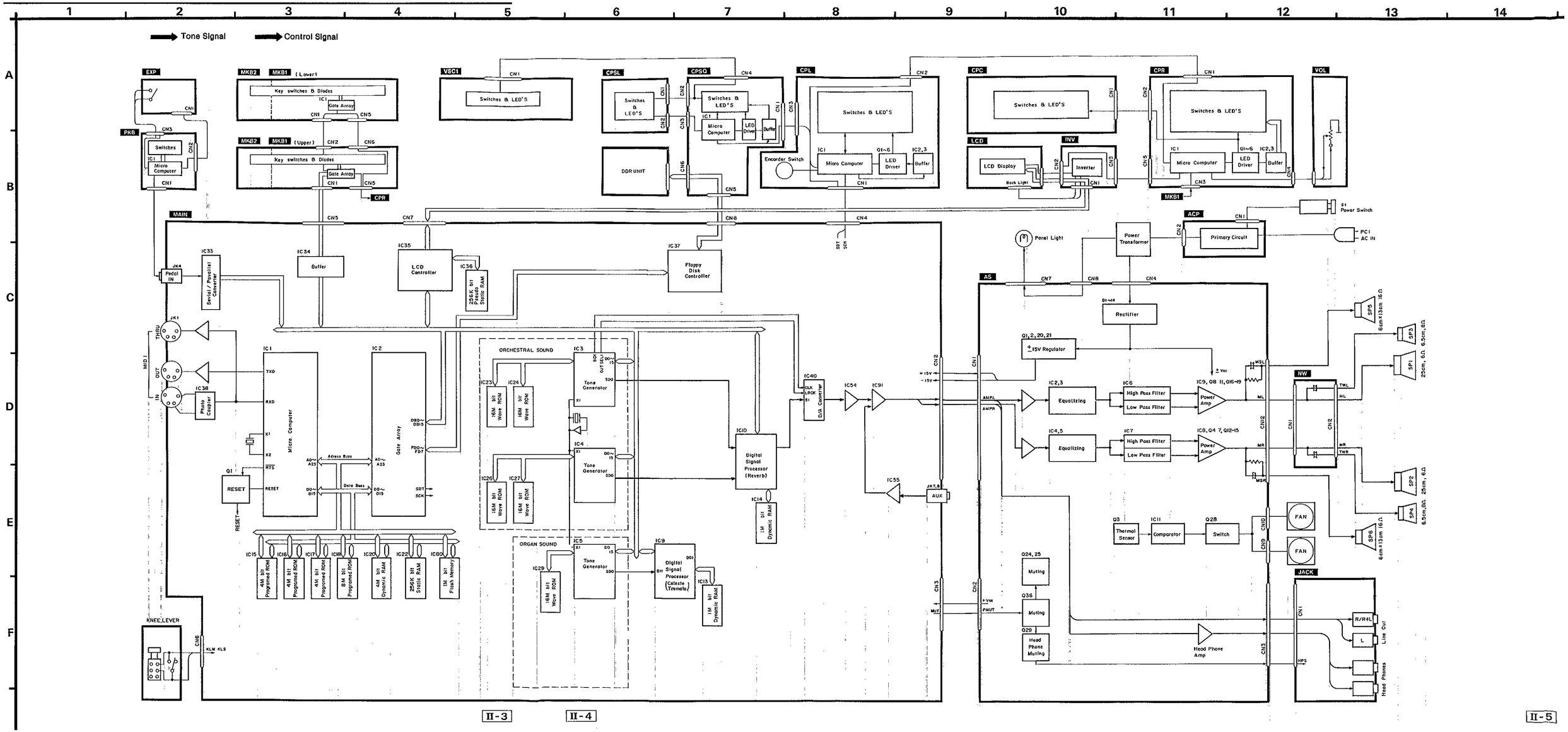
WIRING CONNECTION DIAGRAM



II-1

II-2

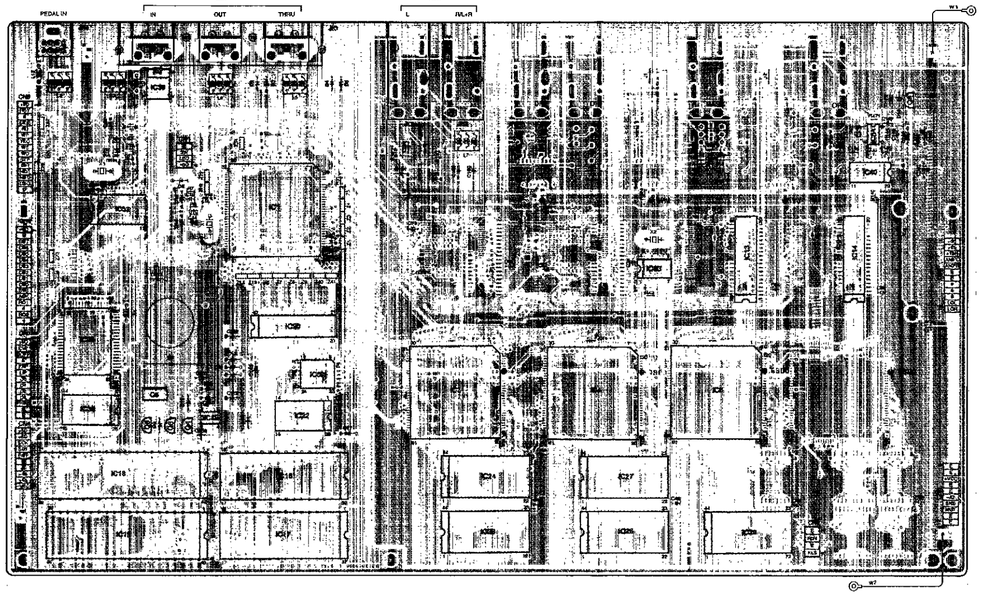
BLOCK DIAGRAM



MAIN CIRCUIT BOARD

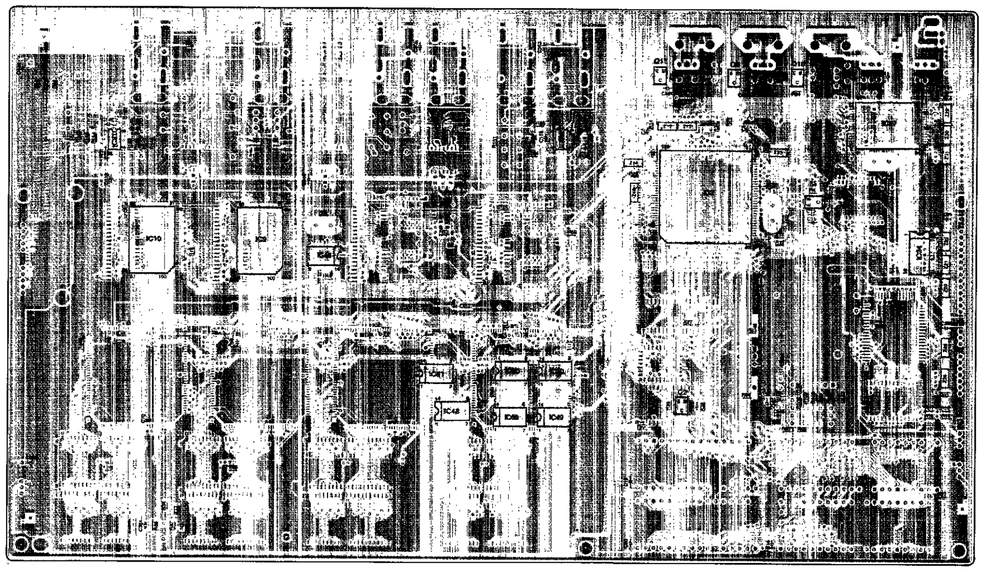
MAIN COMPONENT SIDE

Component Side
Foil Side



MAIN FOIL SIDE

SXPG218321

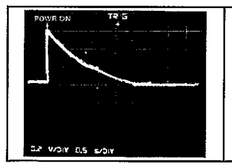


■ **Measuring Condition** ■ 波形の測定条件

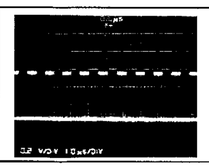
Set the initial setting mode (Refer to page I-3)
イニシャルセッティングを行ってください。(I-3 ページ参照)

- SOUND ..... LOWER TAB ORGAN 8′, 4′
- TREMOLO ..... ON
- KEYBOARD C3
- RHYTHM ..... Start
- TEMPO ..... ♩ =120

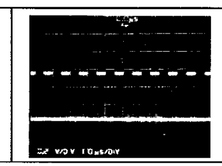
RESET



PSDO

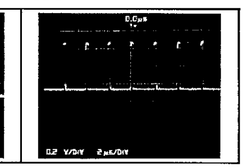


QSDO



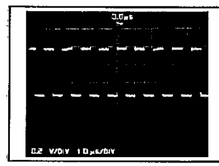
RSDO

SSDO

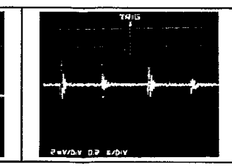


• Power → ON

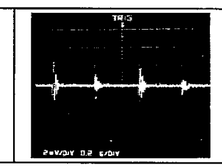
ZK



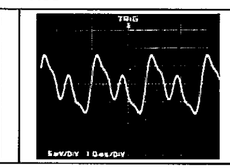
DP1



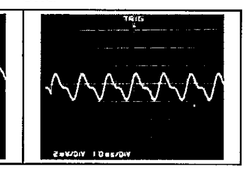
DP2



BASS



ORG



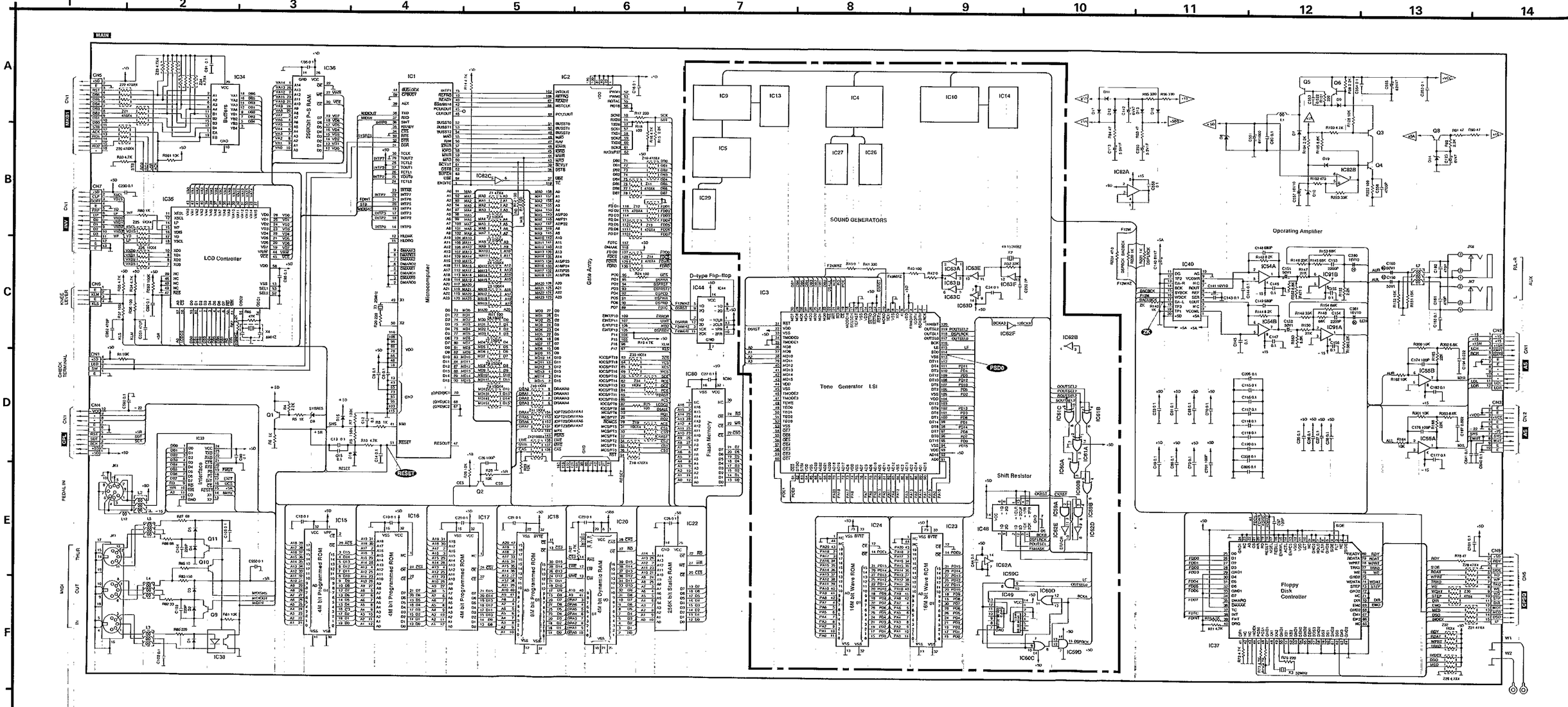
MAIN

NOTES:

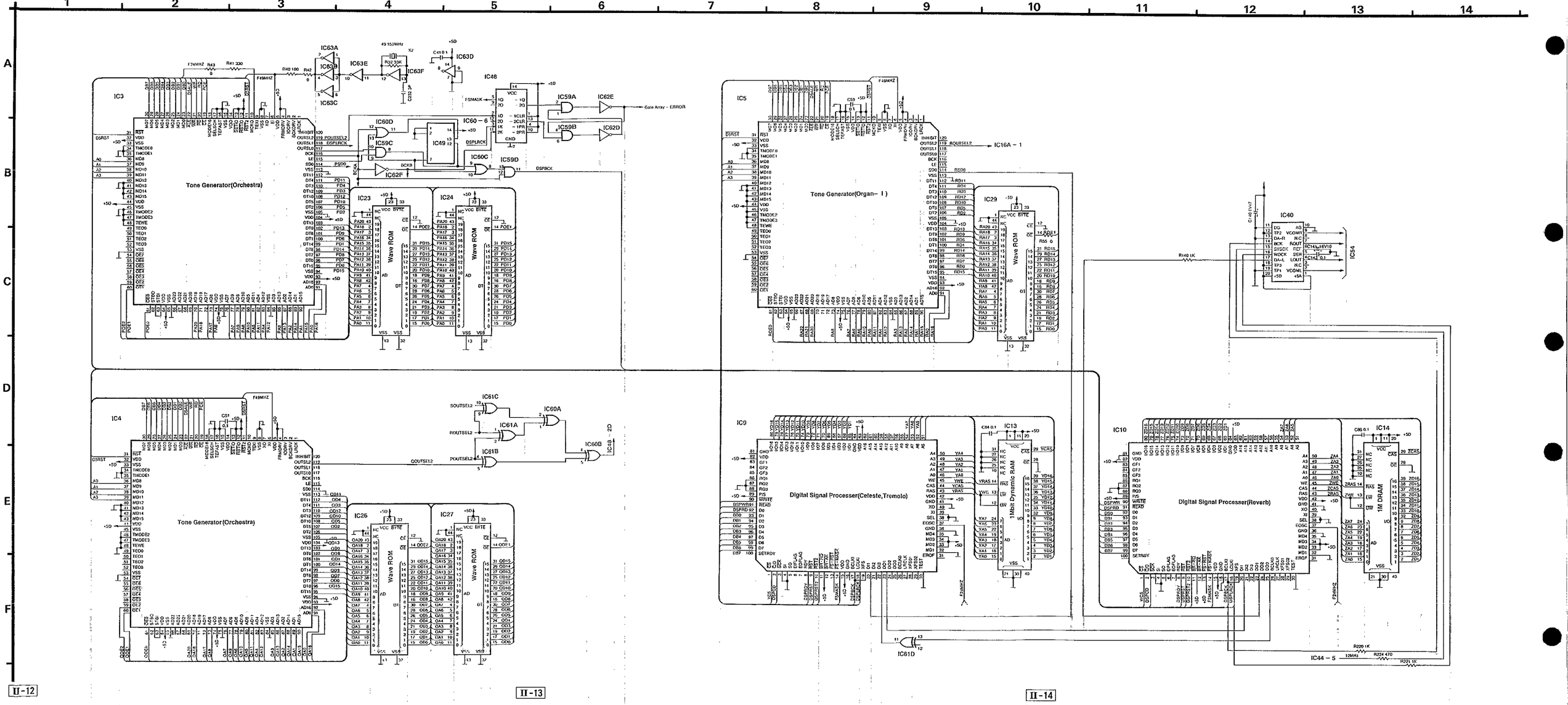
- IC'S

IC1:	D70236AGD12B	IC44, 48:	D74HC74GS
IC2:	D65046GD188	IC49:	D74HC393GS
IC3~5:	TC25540AF006	IC54, 55, 91:	M5218AFP
IC9, 10:	D6383GF-3B9	IC59:	D74HC08GS
IC13, 14:	M5M411664J8S	IC60:	D74HC32GS
IC15:	QSIGCGA1AX	IC61:	D74HC86GS
IC16:	QSIGCGA1BX	IC62:	D74HC04GS
IC17:	QSIGCGA1CX	IC63:	D74HCU04GS
IC18:	QSIG03C08035	IC80:	AM29F010
IC20:	M5M44170AJ8S	IC82:	BA10393F
IC22:	M5256BFP85LL	• TRANSISTORS	
IC23, 26:	QSIGT3C16016	Q1, 9~11:	2SB709ARTW
IC24:	QSIGT3C16017	Q2	2SD601AQTW
IC27:	QSIGT3C16018	Q3, 4, 6, 8:	2SC1815GR
IC29:	QSIGT3C16021	Q5	2SB946P
IC33:	M66230FP	• DIODES	
IC34:	D74HC244GS	D1~5, 9, 11~13, 15~10:	MA165
IC35:	SED1330FBA	D6:	MA2062LF
IC36:	HM65256BLF10	D7:	SVDGERC9102
IC37:	D72068GF-3B9	D8:	MA1030
IC38:	SVIGTLP513	D10:	MA4051
IC40:	PCM69AU	D14:	MA4056

MAIN CIRCUIT DIAGRAM



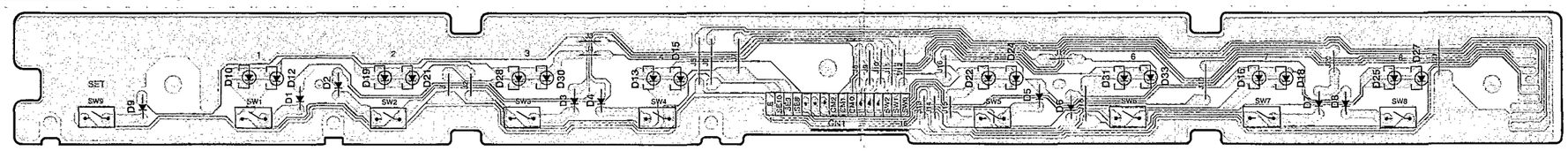
MAIN CIRCUIT SOUND GENERATORS



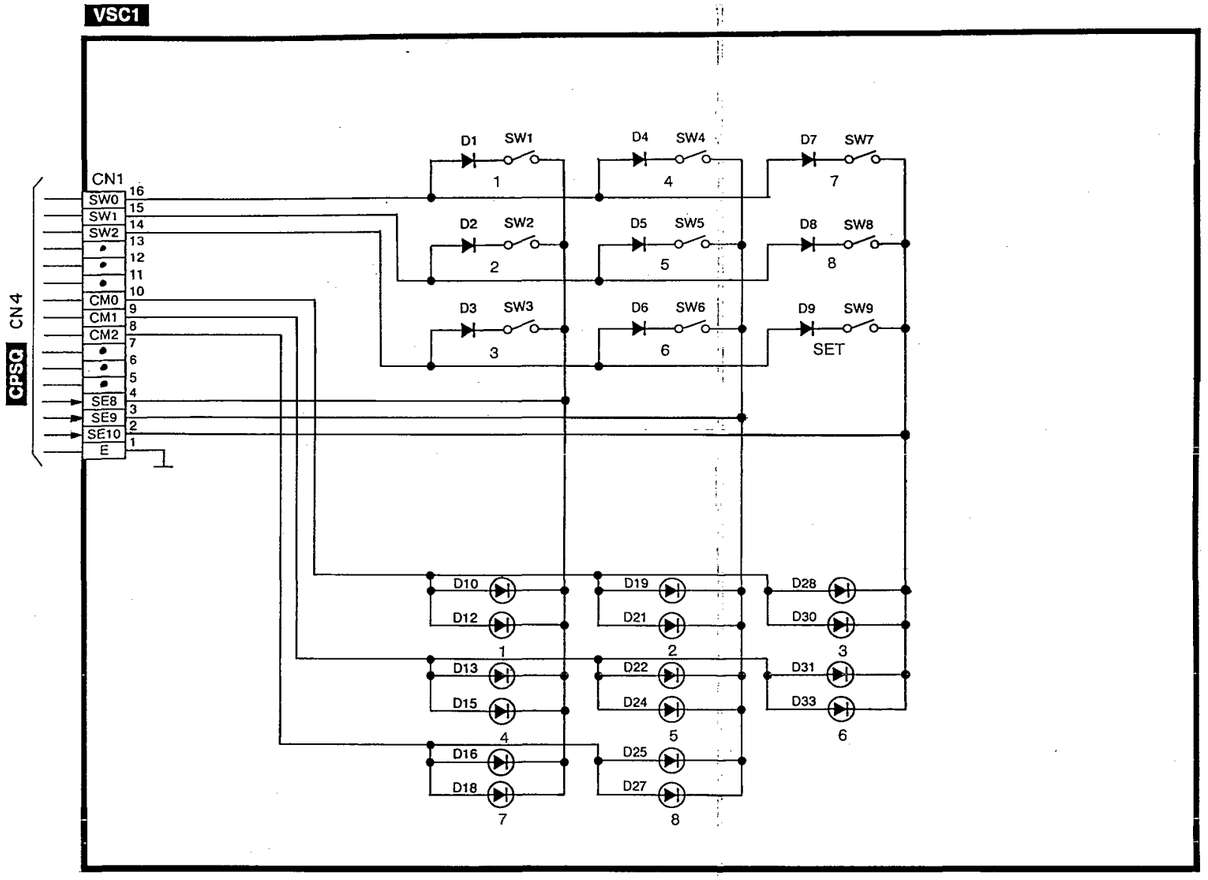
VSC VOICE SETTING COMPUTER CIRCUIT

VSC

SXPG218521B



VSC1



VSC

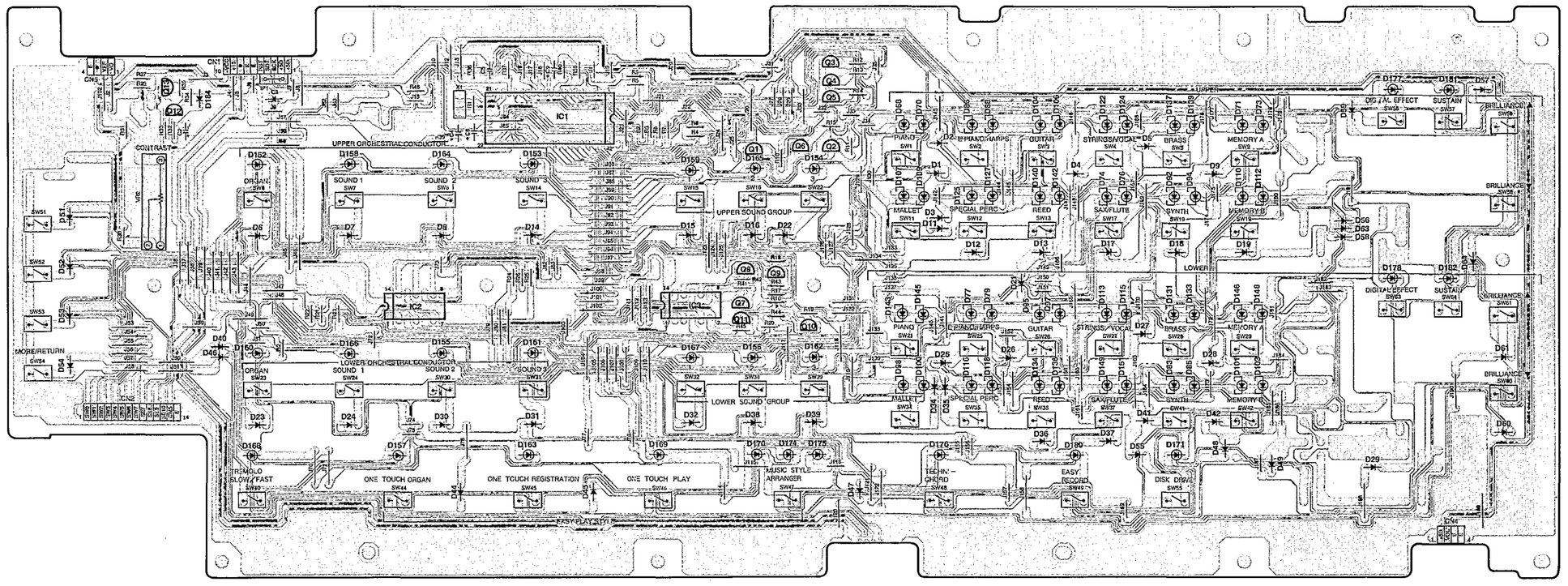
NOTES:

- DIODES
  - D1~9: MA165
  - D10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33: SEL6210S
- SWITCHES
  - S1~9: EVQ21907K

CPR VR CONTROL PANEL RIGHT, MAIN VOLUME CIRCUIT BOARD

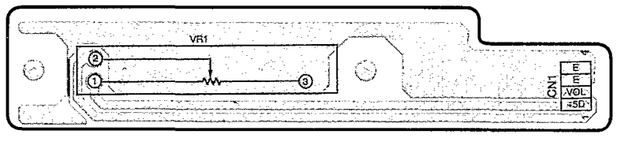
CPR

SXPG218621A



VR

SXPG218711D

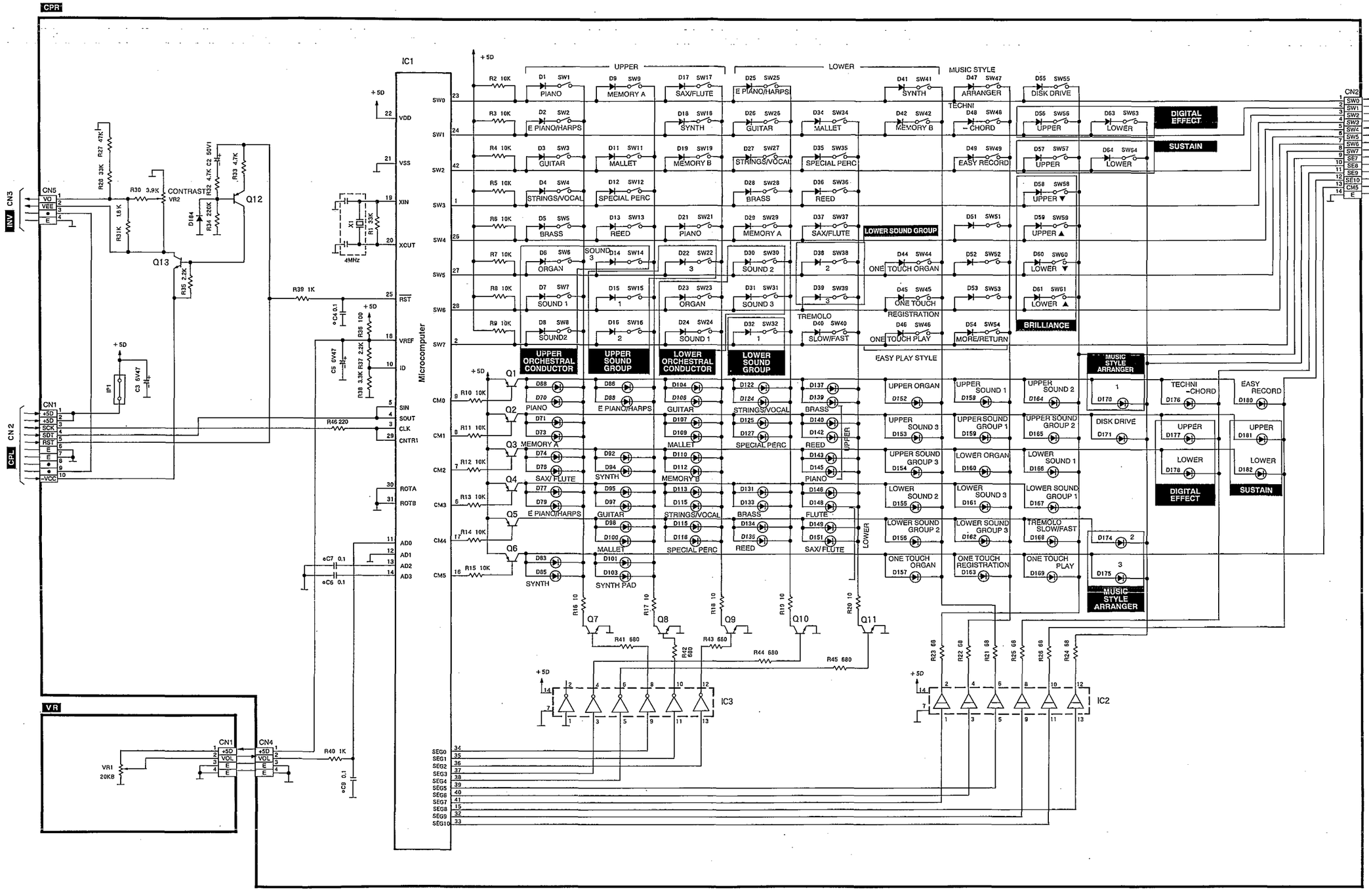


CPR

NOTES:

- IC'S
  - IC1: M37471M2142S
  - IC2: HD74LS07P
  - IC3: D74HC04C
- TRANSISTORS
  - Q1~6: 2SA830SB
  - Q7~11, 13: 2SC1815GR
  - Q12: 2SA1015-GR
- DIODES
  - D1~9, 11~19, 21~32, 34~42, 44~49, 51~61, 63, 64, 184: MA165
  - D68, 70, 71, 73, 74, 76, 77, 79, 83, 85, 86, 88, 92, 94, 95, 97, 98, 100, 101, 103, 104, 106, 107, 109, 110, 112, 113, 115, 116, 118, 122, 124, 125, 127, 131, 133, 134, 136, 137, 139, 140, 142, 143, 145, 146, 148, 149, 151: SEL6210S
  - D152~156, 158~162, 164~168, 170, 174~178, 181, 182: SEL4117RM
  - D157, 163, 169, 171, 180: SEL4417GM

CPR VR CONTROL PANEL RIGHT, MAIN VOLUME CIRCUIT DIAGRAM

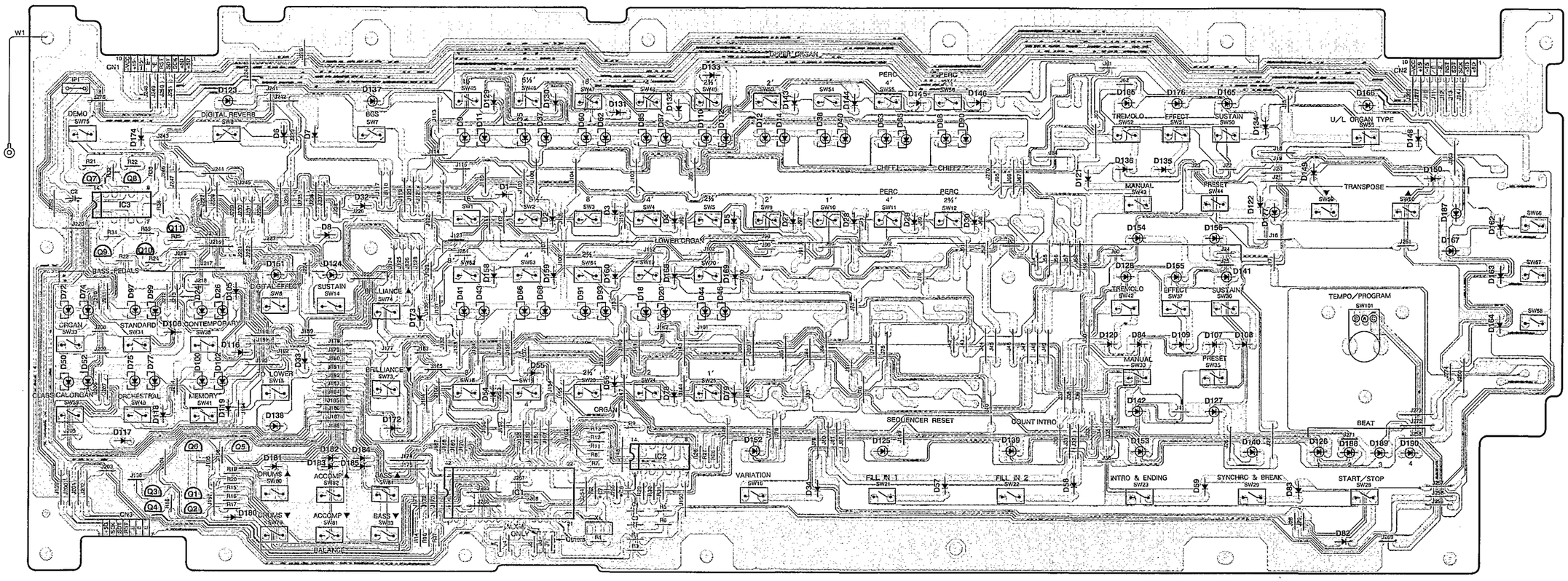


CPL CONTROL PANEL LEFT CIRCUIT BOARD

CPL

• Others **SXPG218521A**

• [M, XM] **SXPG218551A**

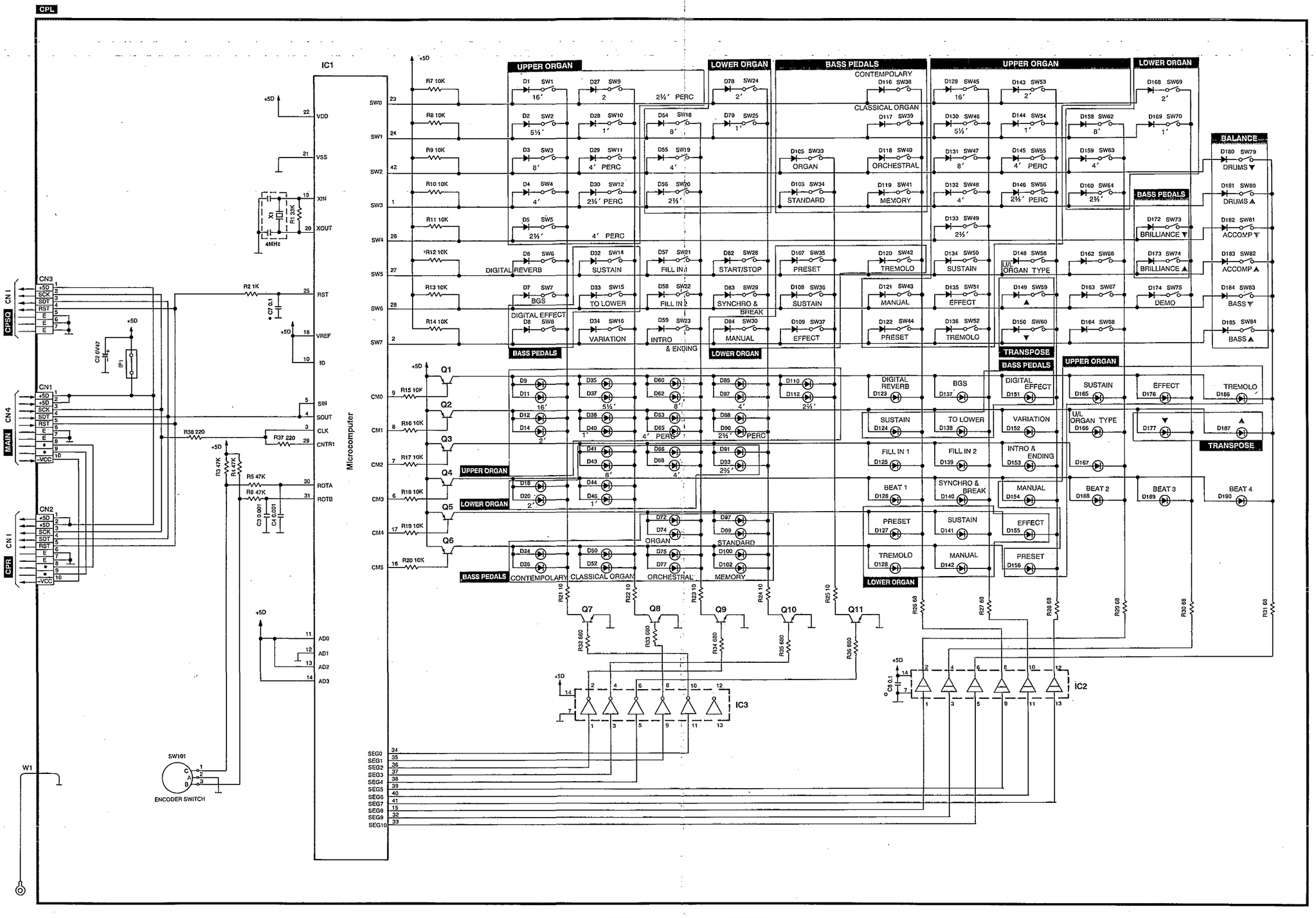


CPL

NOTES:

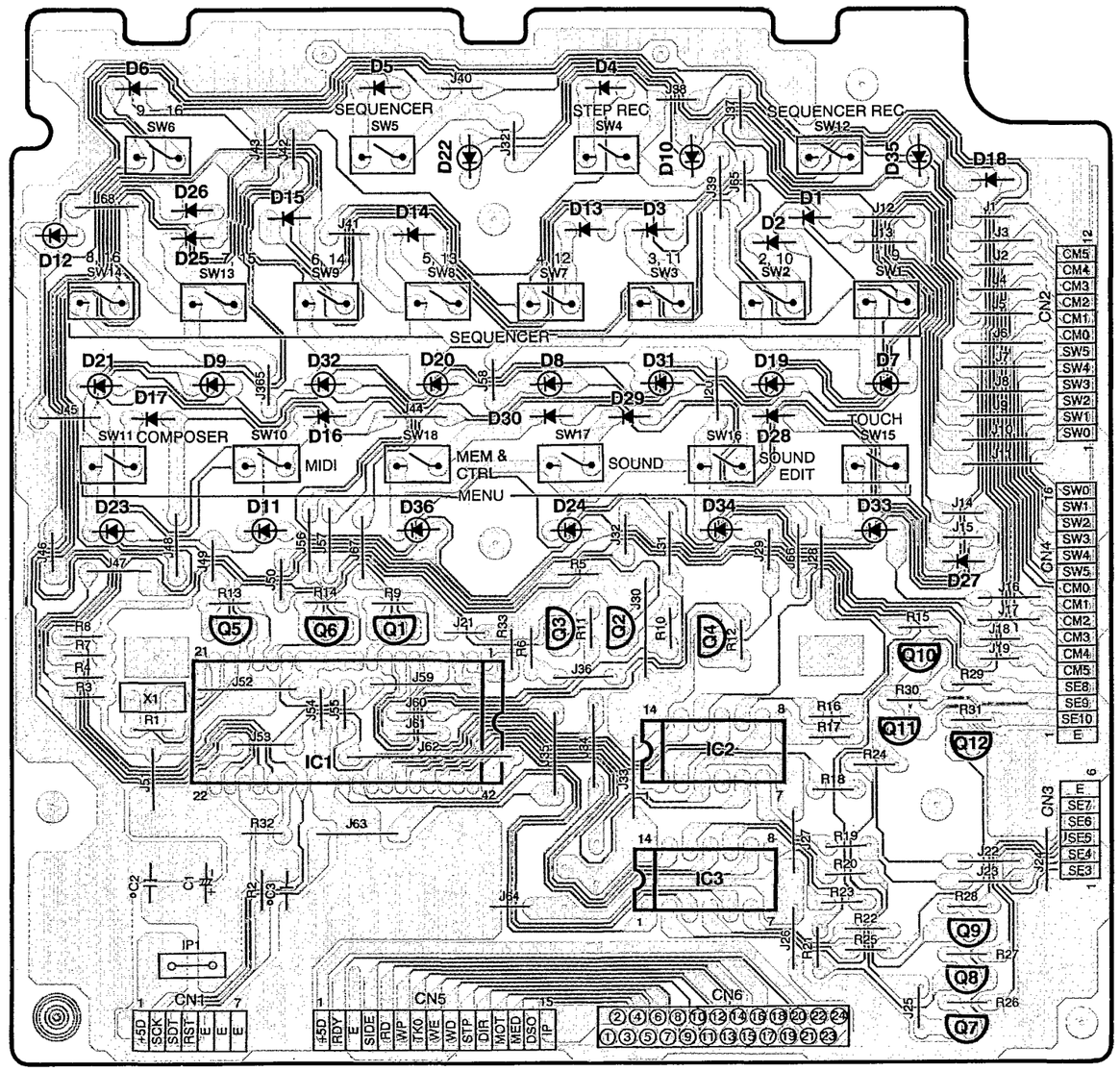
- IC'S
  - IC1: M37471M2196S
  - IC2: HD74LS07P
  - IC3: D74HC04C
- TRANSISTORS
  - Q1~6: 2SA830SB
  - Q7~11: 2SC1815GR
- DIODES
  - D1~8, 27~30, 32~34, 54~59, 78, 79, 82~84, 105~109, 116~122, 129~136, 143~146, 148~150, 158~160, 162~164, 168, 169, 172~174, 180~185: MA165
  - D9, 11, 12, 14, 18, 20, 35, 37, 38, 40, 41, 43, 44, 46, 60, 62, 63, 65, 66, 68, 85, 87, 88, 90, 91, 93, 100, 102, 110, 112: SEL6410E
  - D24, 26, 50, 52, 72, 74, 75, 77, 97, 99: SEL6210S
  - D123~126, 128, 137~141, 151~153, 155, 165, 176, 177, 186, 187: SEL4117RM
  - D127, 142, 154, 156, 166, 167, 188~190: SEL4117GM

CPL CONTROL PANEL LEFT CIRCUIT DIAGRAM



CPSQ SEQUENCER CONTROL CIRCUIT BOARD

CPSQ SXPG218711A

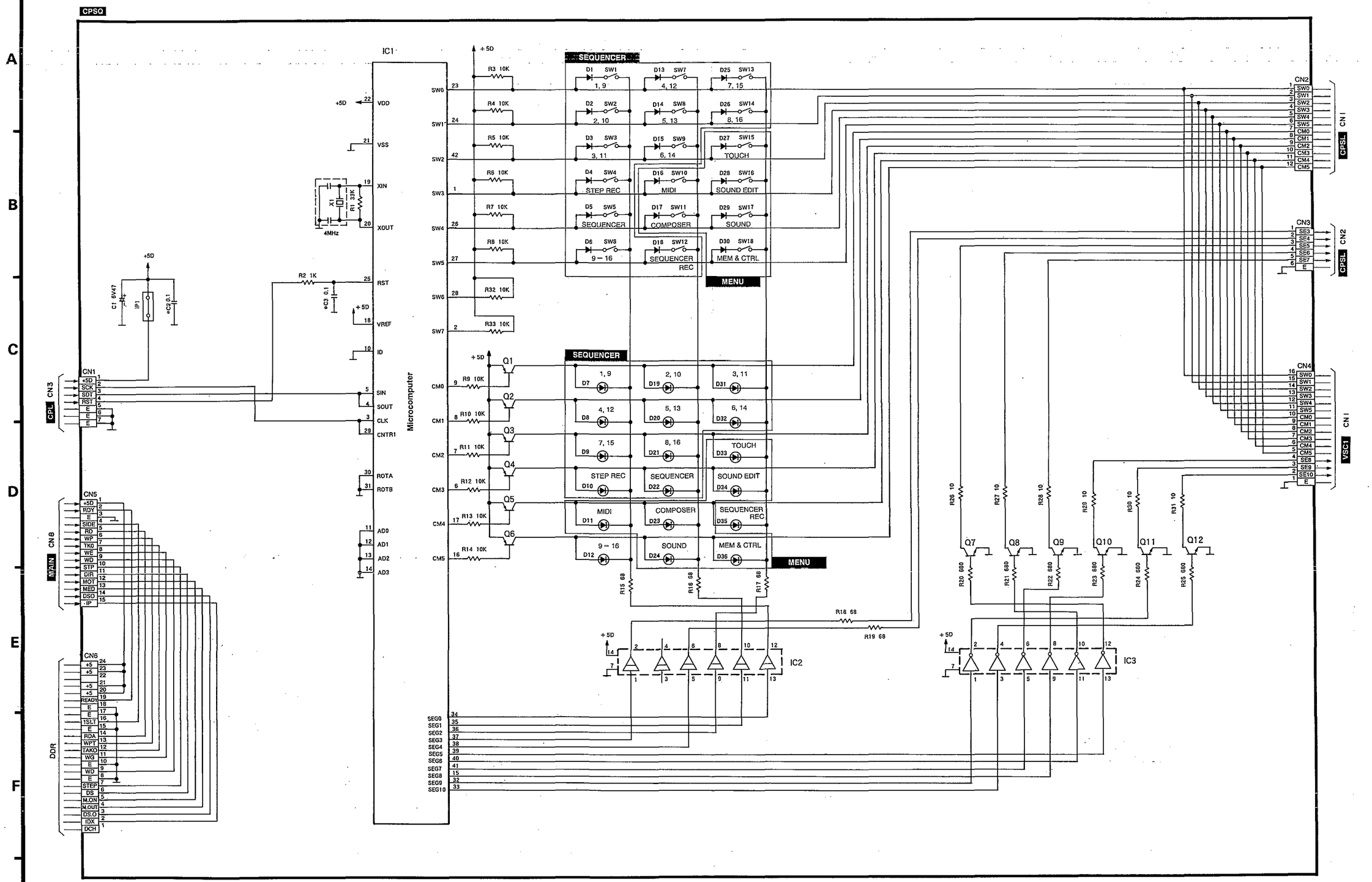


CPSQ

NOTES:

- IC'S
  - IC1: M37471M2142S
  - IC2: HD74LS07P
  - IC3: D74HC04C
- TRANSISTORS
  - Q1~6: 2SA830SB
  - Q7~12: 2SC1815GR
- DIODES
  - D1~6, 13~18, 25~30: MA165
  - D7~12, 19~24, 31~36: SEL4417G

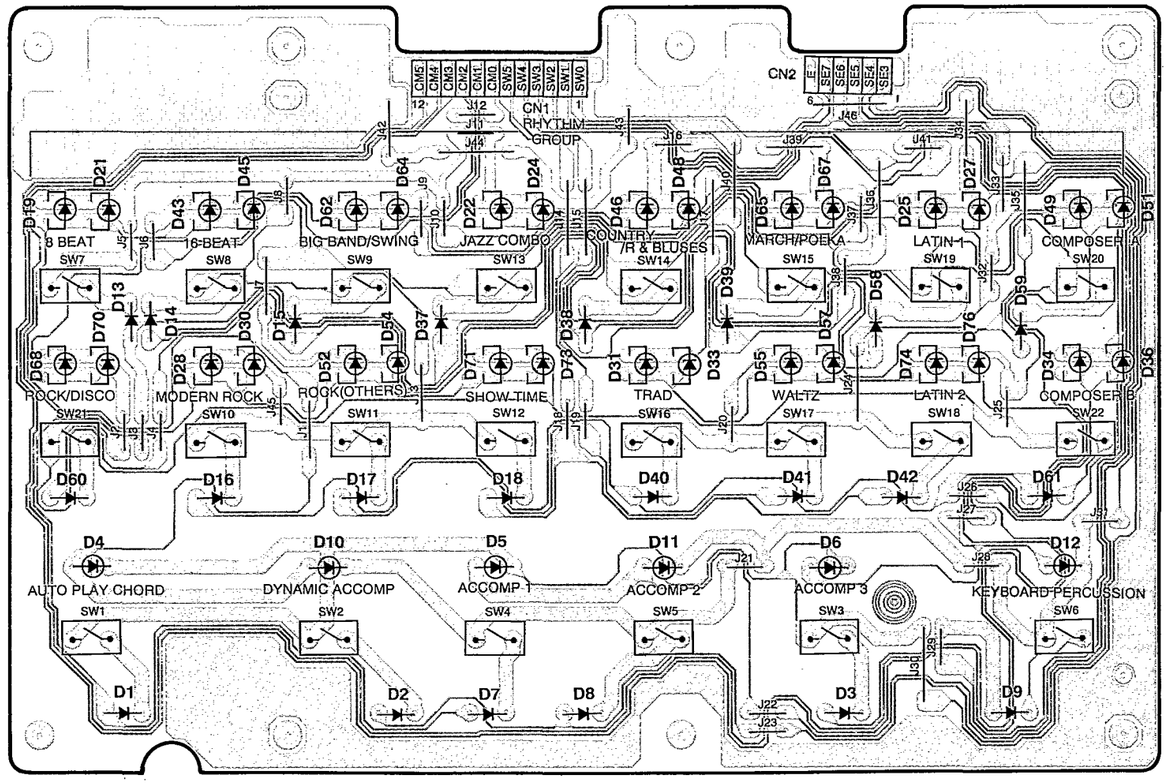
CPSQ SEQUENCER CONTROL CIRCIT DIAGRAM



LOWER CONTROL PANEL LEFT, CONTROL PANEL CENTER CIRCUIT BOARD

CPSL

SXPG218711B



CPSL

NOTES:

- DIODES

D1~3, 7~9, 13~18, 37~42, 58~61:	MA165
D4:	SEL4417GM
D5, 6, 10~12:	SEL4117RM
D19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 43, 45, 46, 48, 52, 54, 55, 57, 62, 64, 65, 67, 68, 70, 71, 73, 74, 76:	SEL6210S
D34, 36, 49, 51:	SEL6410E

CPC

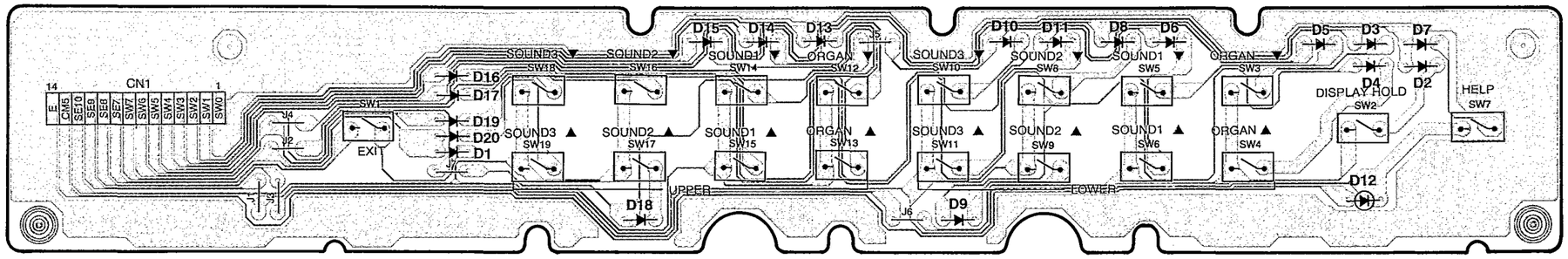
NOTES:

- DIODES

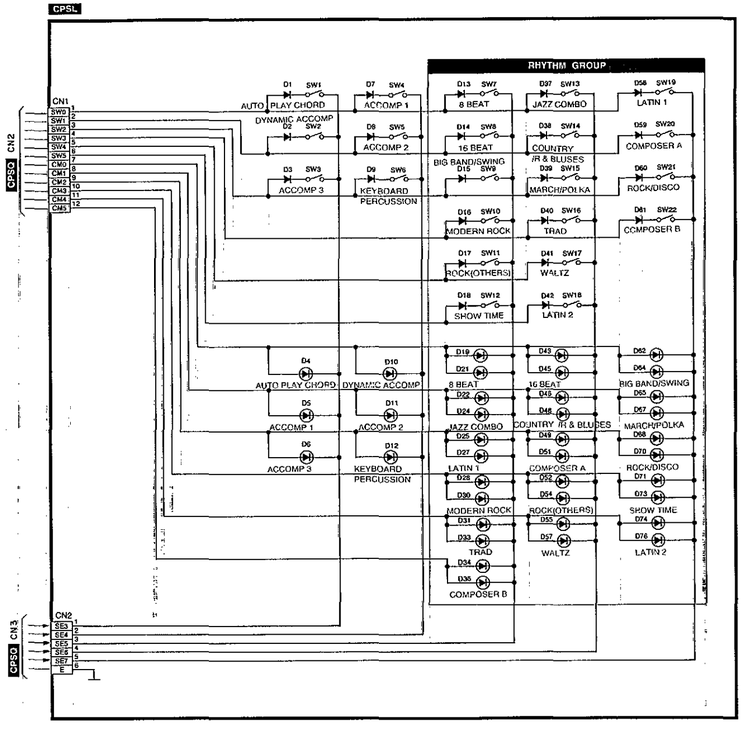
D1~11, 13~20:	MA165
D12:	SEL4117RM

CPC

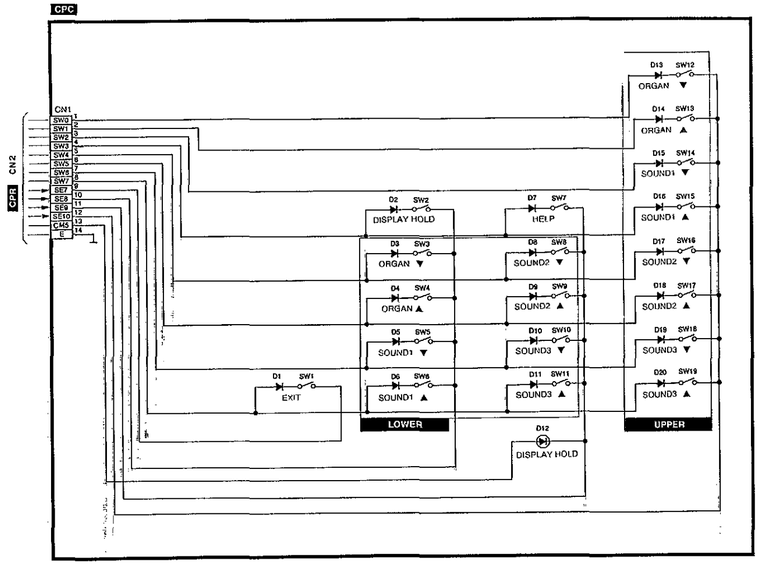
SXPG218711C



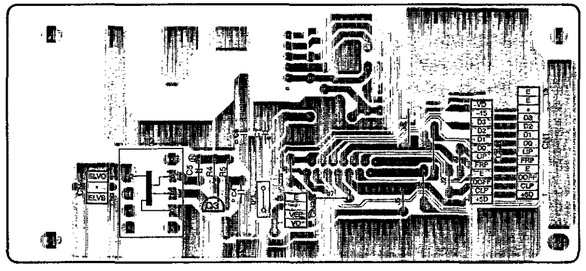
CPSL



CPC

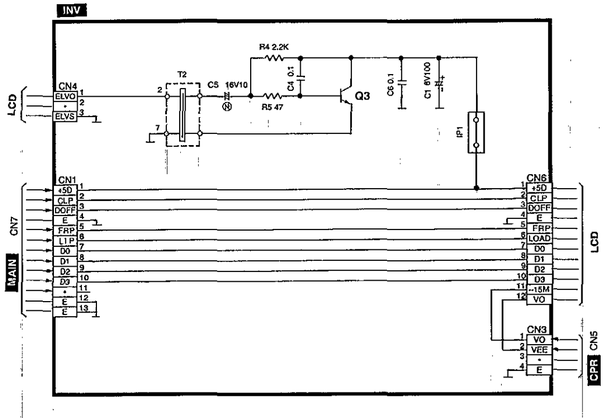


INV SXPG218821C



INV

NOTES:
• TRANSISTORS
Q3: 2SC3940ARS

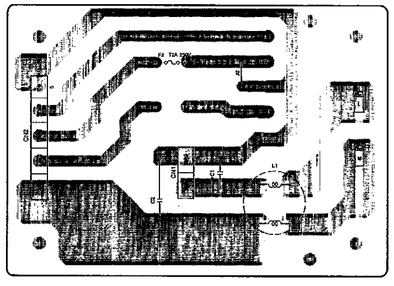


AC POWER SUPPLY, AMP & POWER SUPPLY, JACK, NETWORK CIRCUIT BOARD

ACP AS JACK NW

ACP

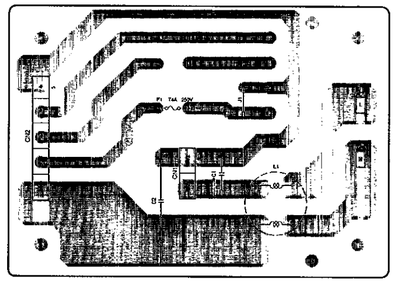
• Others **SXPG218821D**
• [EK] **SXPG2188121D**
• [XL] **SXPG2188141D**



ACP

NOTES:
• FUSE
F2: XBA2C20TBO

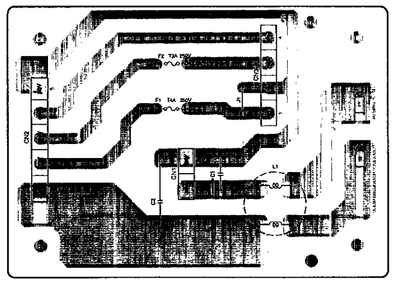
ACP • [M, MC, XM] **SXPG2188111D**



ACP

NOTES:
• FUSE
F1: XBA1C40NU100

ACP • [X, XS, XT] **SXPG2188131D**
• [XR] **SXPG2188151D**
• [XD] **SXPG2188161D**

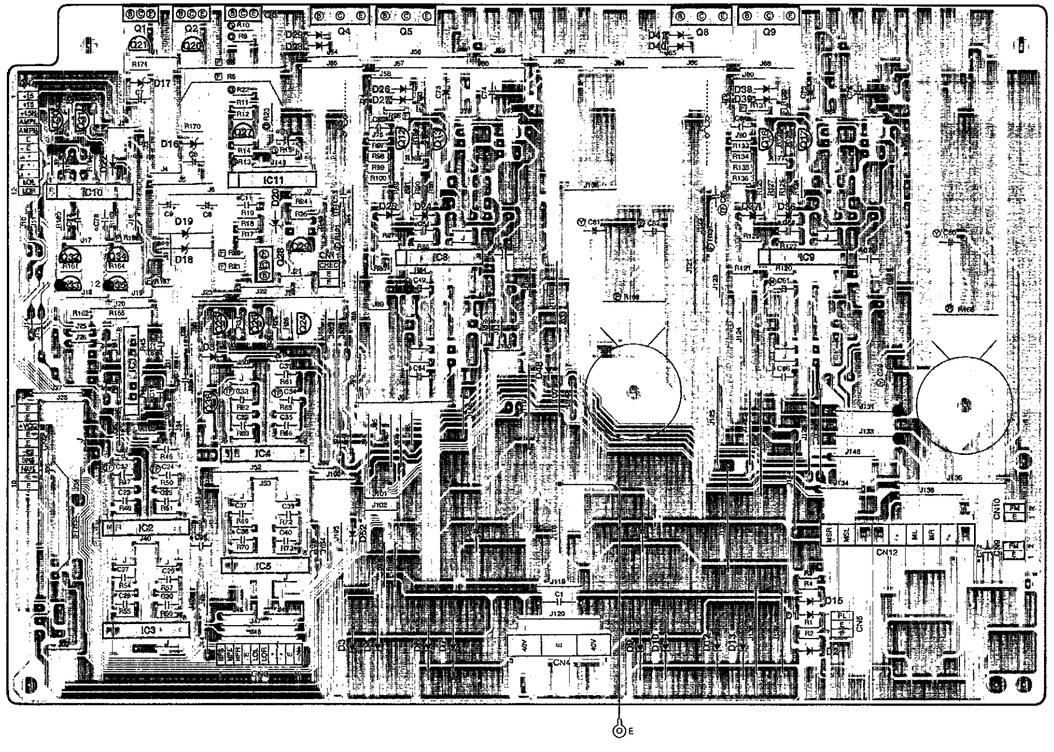


ACP

NOTES:
• FUSES
F1: XBA2C40TBO
F2: XBA2C20TBO

AS

• Others **SXPG218421** • [M, MC, XM] **SXPG218461**



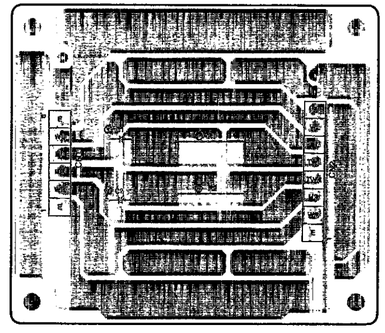
AS

NOTES:
• IC'S
IC1~5, 8~11: SVIGM5218L
• TRANSISTORS
Q1: 2SB1548A-P
Q2, 3, 28: 2SD2374A-P
Q4, 8: 2SC5100P
Q5, 9; 2SA1908P
Q12, 16, 33, 35: 2SA1534AR
Q13, 17, 32, 34: 2SC3940ARS
Q20, 25, 29, 31: 2SC1815GR
Q21, 24, 26, 27, 30, 36: 2SA1015-GR

• DIODES
D1, 2, 15: SVDGERA1502
D3, 4, 6, 7, 9, 10, 12, 13: SVDS3V20
D16, 17: MA4160
D18, 19: MA2180LF
D20: MA4082
D22, 48: EK04
D24, 25, 36, 37, 51, 52: MA165
D26~29, 38~41: MA185
• FUSES
F3, 5 others: XBA2C25TB0
F3, 5: [M, MC, XM] XBA1C31NU100

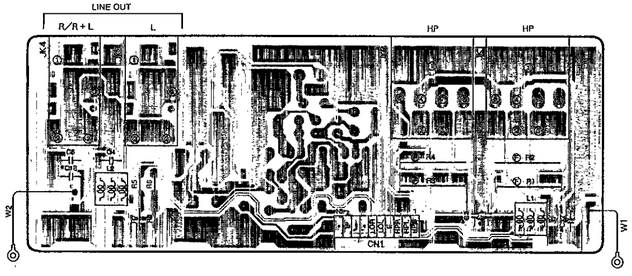
NW

SXPG218811B

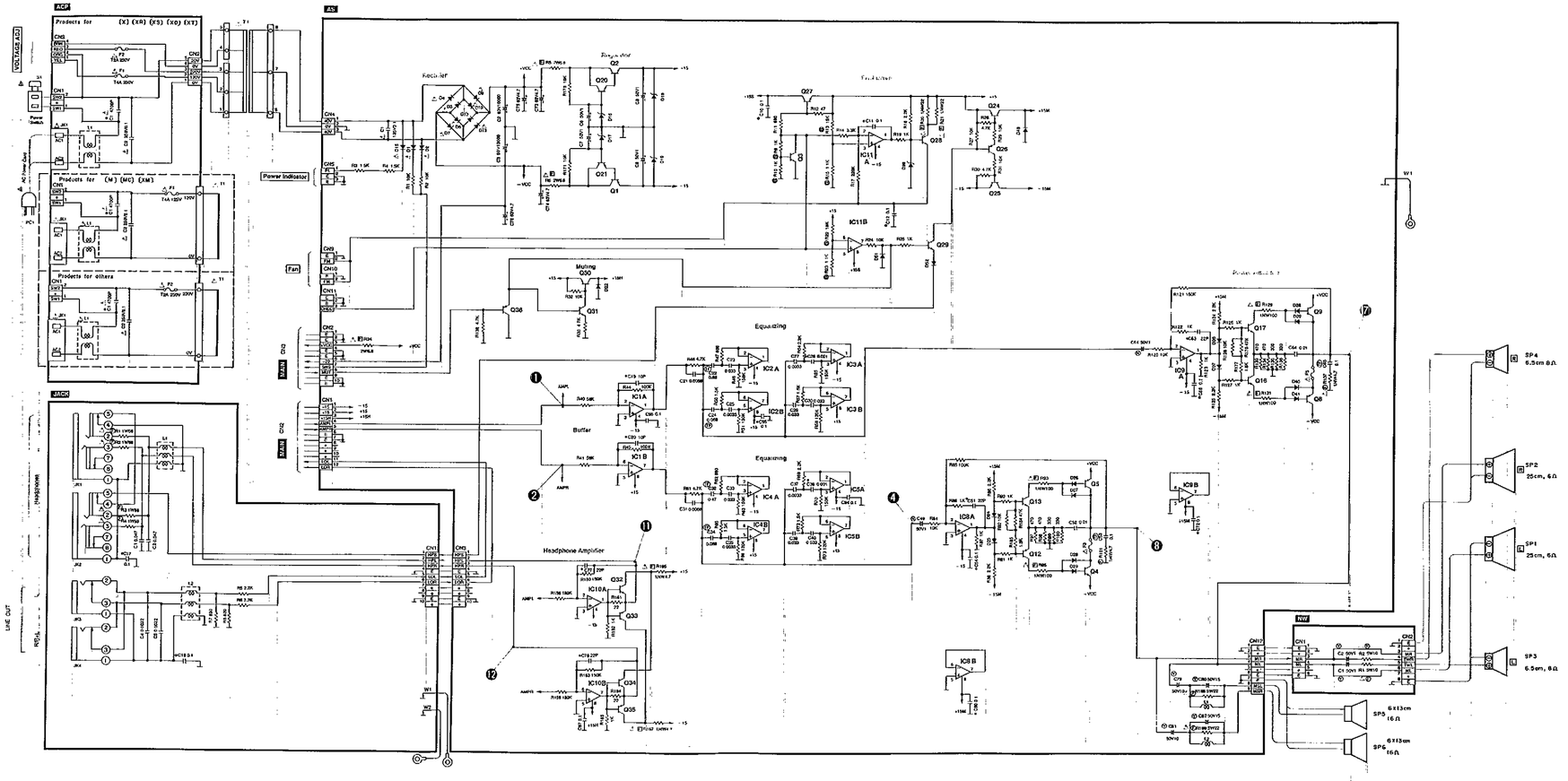


JACK

SXPG218821A



AC POWER SUPPLY, AMP & POWER SUPPLY, JACK, NETWORK CIRCUIT DIAGRAM



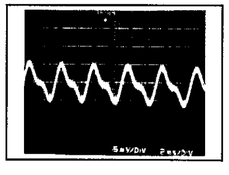
■ Waveform measurement

1. Activate the initial setting method. (Refer to page I-7)
2. Set the E. organ to reference required mode as followings.
   - LOWER ORCHESTRAL CONDUCTOR..... TAB & ORGAN
   - LOWER TAB & ORGAN..... FLUTE 8′ : ON
     FLUTE 4′ : ON
   - TREMOLO..... OFF
   - DIGITAL REVERB..... ALL OFF
3. Key..... C3

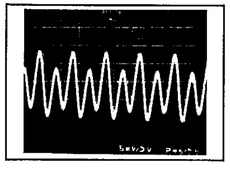
■ 波形の測定条件

1. イニシャルセッテングを行ってください。(I-7 ページ　参照)
2. 次のようにセッティングしてください。
   - LOWER ORCHESTRAL CONDUCTOR ... TAB & ORGAN
   - LOWER TAB & ORGAN ..... FLUTE 8′ : ON
     FLUTE 4′ : ON
   - TREMOLO..... OFF
   - DIGITAL REVERB..... ALL OFF
3. Key C3

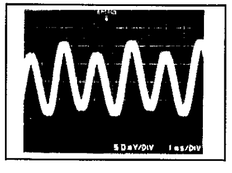
❶, ❷



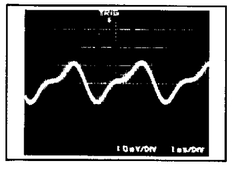
❺



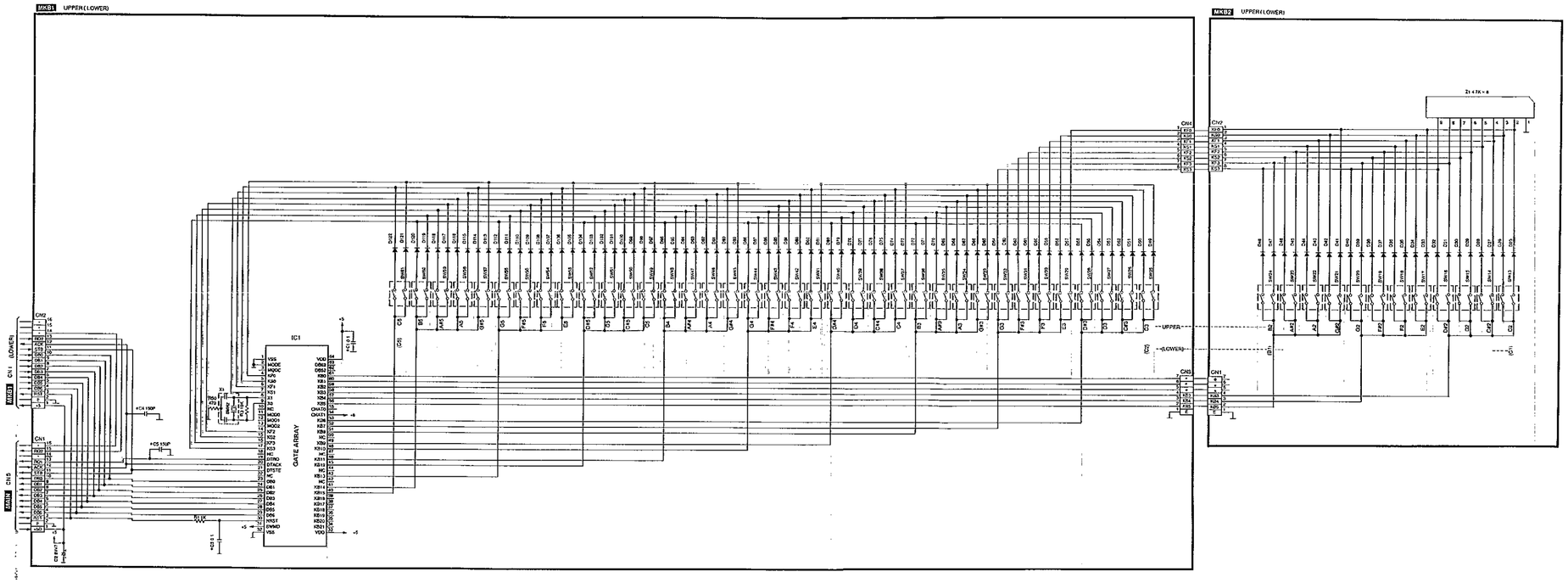
❼, ❽



⓫, ⓬

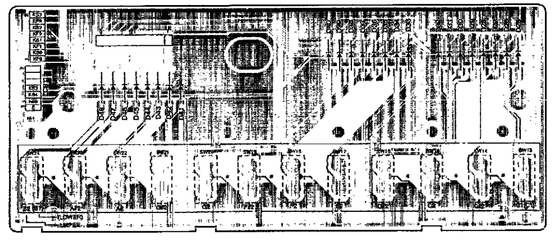


MKB1 MKB2 MANUAL KEYBOARD 1, 2 CIRCUIT DIAGRAM & CIRCUIT BOARD



MKB2

SXPG218111



MKB1

NOTES:

- IC'S
  IC1: D65022CW-285
- DIODES
  D49～122: MA165

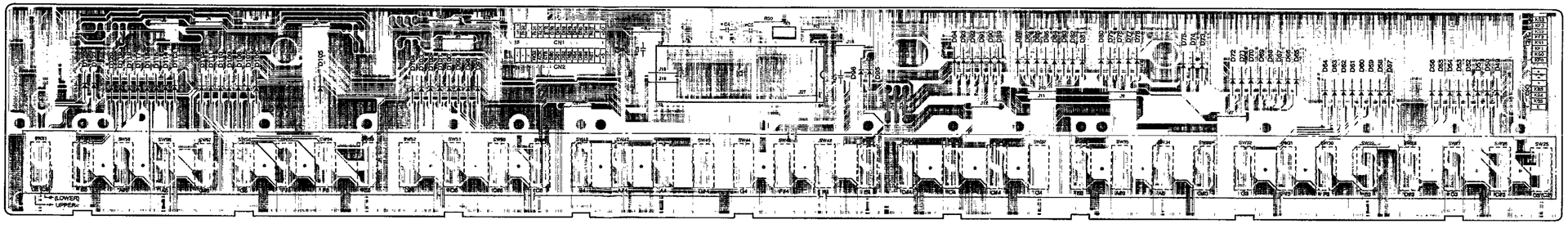
MKB2

NOTES:

- DIODES
  D25～48: MA165

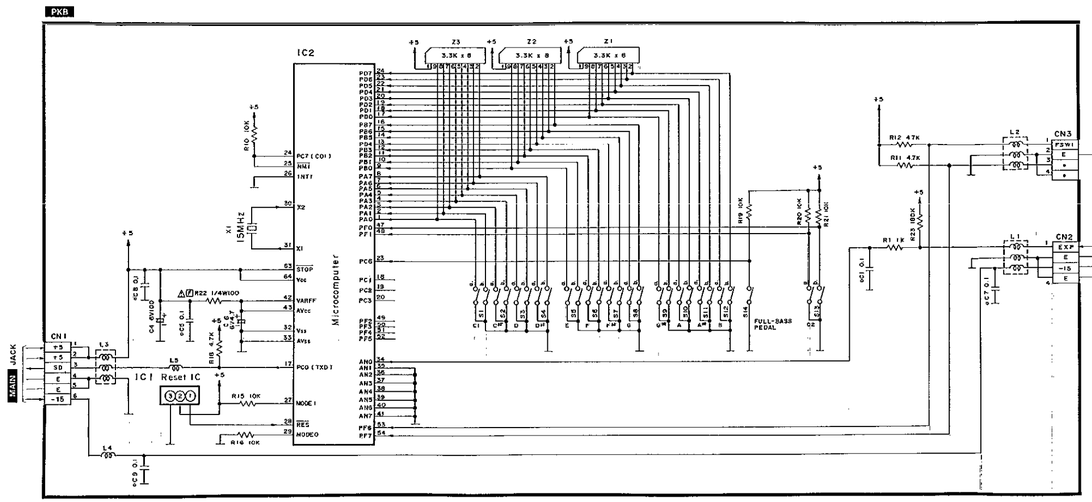
MKB1

SXPG216131

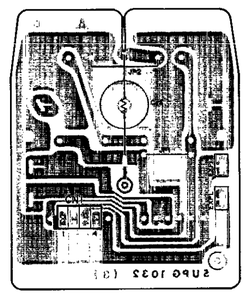


PKB EXP PEDAL KEYBOARD AND EXPRESSION CIRCUIT DIAGRAM

EXP EXPRESSION CIRCUIT BOARD



EXP SXPG10329C

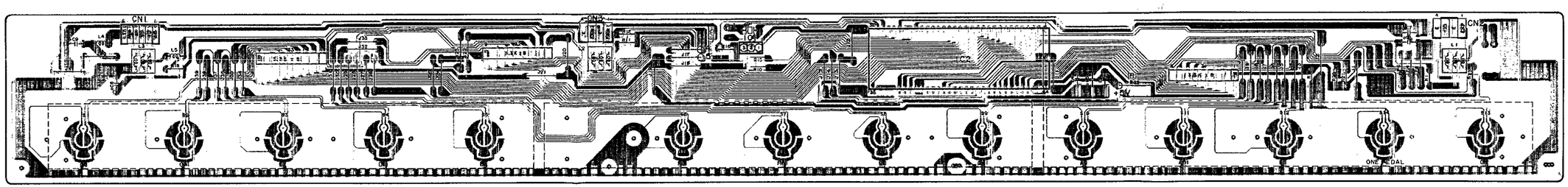


PKB

NOTES:

- IC'S
  - IC1: MN1280R
  - IC2: D78C11ACWF26

PKB SXPG201241



REPLACEMENT PARTS LIST.....P.C.B. and Wiring Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. For part No. with area mark, check the area when placing an order.

■ PRINTED CIRCUIT BOARD

	RTL	Area	Part No.	Description	P/S
○	RTL		SXPG218321	MAIN	1
○	RTL		SXPG218621A	CPR	1
○	RTL		SXPG218711D	VR	1
○	RTL	OTHERS	SXPG218521A	CPL	1
○	RTL	M MA	SXPG218551A	CPL	1
○	RTL		SXPG218521B	VSC	1
○	RTL		SXPG218711A	CPSQ	1
○	RTL		SXPG218711B	CPSL	1
○	RTL		SXPG218711C	CPC	1
○	RTL		SXPG218821C	INV	1
○	RTL	OTHERS	SXPG218421	AS	1
○	RTL	M MC MA	SXPG218461	AS	1
○	RTL	OTHERS	SXPG218821D	ACP	1
○	RTL	M MC MA	SXPG2188111D	ACP	1
○	RTL	EK	SXPG2188121D	ACP	1
○	RTL	X XS XT	SXPG2188131D	ACP	1
○	RTL	XL	SXPG2188141D	ACP	1
○	RTL	XR	SXPG2188151D	ACP	1
○	RTL	XD	SXPG2188161D	ACP	1
○	RTL		SXPG218821A	JACK	1
○	RTL		SXPG218811B	NW	1
○	RTL		SXPG216131	MKB1	2
○	RTL		SXPG218111	MKB2	2
○	RTL		SXPG201241	PKB	1
	RTL		SXPG103211	EXP	1
○			QSLG012BA	LCD	1

MAIN MAIN CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
○ IC1	D70236AGD12B	Microcomputer	1
IC2	D65046GD188	Gate Array	1
IC3~5	TC25540AF006	Tone Generator LSI	3
○ IC9, 10	D6383GF-3B9	Digital Signal Processor	2
IC13, 14	M5M411664J8S	1M bit D-RAM	2
○ IC15	QSIGCGA1AX	4M bit Programmed EP ROM	1
○ IC16	QSIGCGA1BX	4M bit Programmed EP ROM	1
○ IC17	QSIGCGA1CX	4M bit Programmed EP ROM	1
○ IC18	QSIG03C08035	8M bit Programmed ROM	1
○ IC20	M5M44170AJ8S	4M bit Dinamic RAM	1
IC22	M5256BFP85LL	256K bit STATIC RAM	1
○ IC23, 26	QSIGT3C16016	16M bit WAVE ROM	2
○ IC24	QSIGT3C16017	16M bit WAVE ROM	1
○ IC27	QSIGT3C16018	16M bit WAVE ROM	1
○ IC29	QSIGT3C16021	16M bit WAVE ROM	1
○ IC33	M66230FP	Interface	1
IC34	D74HC244GS	3 State Buffers	1
IC35	SED1330FBA	LCD Controller	1
IC36	HM65256BLF10	256K bit Pseudo Static RAM	1
IC37	D72068GF-3B9	Floppy Disk Controller	1
IC38	SVIGTLP513	Photo Coupler	1
○ IC40	PCM69AU	D-A Converter	1
IC44, 48	D74HC74GS	D-type Flip flpos	2
○ IC49	D74HC393GS	DUAL 4 bit Binary Counter	1
IC54, 55, 91	M5218AFP	Operational Amplifier	3
○ IC59	D74HC08GS	QUAD 2 Input AND GATE	1
○ IC60	D74HC32GS	QUAD 2 Input OR GATE	1
○ IC61	D74HC86GS	QUAD 2 Input Exclusive OR GATE	1
IC62	D74HC04GS	6 Inverter	1
○ IC63	D74HCU04GS	Hex Inverter	1
○ IC80	AM29F010	Flash Memory	1
IC82	BA10393F	Comparator	1
TRANSISTORS			
Q1, 9~11	2SB709ARTW	Transistor	4
Q2	2SD601AQTW	Transistor	1
S Q3, 4, 6, 8	2SC1815GR	Transistor	4
Q5	2SB946P	Transistor	1
DIODES			
D1~5, 9, 11~13, 15~19	MA165	Diode	14
D6	MA2062LF	Zener, 6.2V	1
D7	SVDGERC9102	Diode	1
D8	MA1030	Zener, 3.0V	1
D10	MA4051	Zener, 5.1V	1
D14	MA4056	Zener, 5.6V	1
OSCILLATORS			
X1	QSXG1A2500A	25MHz, Quartz Oscillator	1
X2	QSXG1I4915A	49MHz, Quartz Oscillator	1
X3	QSXG1I3200A	32MHz, Quartz Oscillator	1
X4	EF0EC8004A5	8MHz, Ceramic Oscillator	1
COMPONENT COMBINATIONS			
○ Z1	EXBV8V470J	47Ω×4	1
Z2~5, 19	EXBV8V101J	100Ω×4	5
○ Z6~9	EXBV8V151J	150Ω×4	4
Z10, 11, 18	EXBV8V471J	470Ω×4	3
Z12~14, 20~22	EXBS8V471J	470Ω×4	6
Z23, 24, 28	EXBV8V472J	4.7kΩ×4	3
Z25, 26, 33	EXBS8V102J	1kΩ×4	3
Z29~31	EXBS8V470J	47Ω×4	3
Z32, 34, 40, 41	EXBV8V102J	1kΩ×4	4
Z42	EXBS8V101J	100Ω×4	1

Ref. No.	Part No.	Description	P/S
COILS			
L1	SLCG3A121T	Coil	1
L2~5, 7	QLQGT3T150SA	Coil	5
L12	QLQGT1B800MA	Coil	1
JACKS			
○ JK1	QJJG004AA	MIDI	1
JK4	QJSG002AA	PEDAL IN	1
JK7, 8	QJJG003AA	AUX	2
WIRES			
W1, 2	QEXGRA01005A	Wire	2
RESISTORS			
R1	ERJ6GEYJ103V	10kΩ	1
R4	ERJ6GEYJ222V	2.2kΩ	1
R5, 6	ERJ6GEYJ102V	1kΩ	2
R7	ERJ6GEYJ104V	100kΩ	1
R8	ERJ6GEYJ102V	1kΩ	1
R9	ERJ6GEYJ154V	150kΩ	1
R10	ERJ6GEYJ472V	4.7kΩ	1
R11~13	ERJ6GEYJ101V	100Ω	3
R14	ERJ6GEYJ472V	4.7kΩ	1
R15	ERJ6GEYJ222V	2.2kΩ	1
R16	ERJ6GEYJ472V	4.7kΩ	1
R17	ERJ6GEYJ221V	220Ω	1
R18	ERJ6GEYJ101V	100Ω	1
R19	ERJ6GEYJ472V	4.7kΩ	1
R20	ERJ6GEYJ221V	220Ω	1
R24, 25	ERJ6GEYJ101V	100Ω	2
R26	ERJ6GEYJ103V	10kΩ	1
R27	ERJ6GEYJ472V	4.7kΩ	1
R28, 29	ERJ6GEYJ103V	10kΩ	2
R32	ERJ6GEYJ333V	33kΩ	1
R33~35	ERJ6GEYJ472V	4.7kΩ	3
R36, 37, 40	ERJ6GEYJ101V	100Ω	3
R41	ERJ6GEYJ331V	330Ω	1
R42, 43	ERJ6GEY0R00V	0Ω	2
R52, 53, 55	ERJ6GEY0R00V	0Ω	3
R60	ERJ6GEYJ102V	1kΩ	1
R66	ERJ6GEYJ473V	47kΩ	1
R67	ERJ6GEYJ222V	2.2kΩ	1
R70~74	ERJ6GEYJ472V	4.7kΩ	5
R76	ERJ6GEYJ221V	220Ω	1
○ R78	ERJ6GEYJ470V	47Ω	1
R80	ERJ6GEYJ221V	220Ω	1
R81	ERJ6GEYJ103V	10kΩ	1
R82	ERJ6GEYJ330V	33Ω	1
R83	ERJ6GEYJ151V	150Ω	1
R85	ERJ6GEYJ100V	10Ω	1
R86, 87	ERJ6GEYJ680V	68Ω	2
○ R90, 91	ERJ6GEYJ470V	47Ω	2
R92	ERJ6GEYJ222V	2.2kΩ	1
○ R93, 94	ERJ6GEYJ470V	47Ω	2
R95, 96	ERJ6GEYJ331V	330Ω	2
R99	ERJ6GEYJ222V	2.2kΩ	1
R101	ERJ6GEYJ221V	220Ω	1
R102	ERJ6GEYJ471V	470Ω	1
R103	ERJ6GEYJ472V	4.7kΩ	1
R104	ERJ6GEYJ222V	2.2kΩ	1
R105	ERJ6GEYJ682V	6.8kΩ	1
R106	ERJ6GEYJ103V	10kΩ	1
R140	ERJ6GEYJ102V	1kΩ	1
○ R142, 144	ERJ6GEYJ822V	8.2kΩ	2
R145	ERJ6GEYJ683V	68kΩ	1
R146	ERJ6GEYJ333V	33kΩ	1
○ R147	ERJ6GEYJ273V	27kΩ	1
R148	ERJ6GEYJ683V	68kΩ	1
R149	ERJ6GEYJ333V	33kΩ	1
○ R150	ERJ6GEYJ273V	27kΩ	1
R151, 152	ERJ6GEYJ153V	15kΩ	2
R153, 154	ERJ6GEYJ683V	68kΩ	2
R155, 156	ERJ6GEYJ222V	2.2kΩ	2
R162	ERJ6GEYJ103V	10kΩ	1
R164	ERJ6GEYJ103V	10kΩ	1
R165, 166	ERJ6GEYJ223V	22kΩ	2
R220, 221	ERJ6GEYJ102V	1kΩ	2
R222	ERJ6GEYJ101V	100Ω	1
R223	ERJ6GEYJ333V	33kΩ	1
R224	ERJ6GEYJ471V	470Ω	1
R300, 301	ERJ6GEYJ103V	10kΩ	2
R302, 303	ERJ6GEYJ682V	6.8kΩ	2
R420~422, 471	ERJ6GEY0R00V	0Ω	4
R562, 563	ERJ6GEYJ682V	6.8kΩ	2
R591	ERJ6GEYJ103V	10kΩ	1
R592	ERJ6GEYJ104V	100kΩ	1
CAPACITORS			
C8, 9, 12~16, 18~21, 23, 25	ECUV1H104ZFX	0.1μF	13
C26	ECUV1H101JG	100pF	1
C27, 34~38, 41, 44, 49, 51, 53, 56, 58, 59, 61, 66, 68, 70, 73, 79, 80, 84, 86, 90~92, 95, 96	ECUV1H104ZFX	0.1μF	28
C97	ECUV1H101JG	100pF	1
C101, 102	ECUV1H104ZFX	0.1μF	2
C103, 104	ECUV1H221JG	220pF	2
C105	ECUV1H104ZFX	0.1μF	1
C113	EECS5R5V105	1F, 5.5V, Memory Back-up	1
C115~120	ECUV1H104ZFX	0.1μF	6
C123	ECEA0JKA470	47μF, 6.3V	1
C135	ECUV1H104ZFX	0.1μF	1
C140	ECEA0JKA470	47μF, 6.3V	1
C141	ECEA1CKA100	10μF, 16V	1
C142	ECEA0JKA470	47μF, 6.3V	1
C143~147	ECUV1H104ZFX	0.1μF	5
○ C148, 149	ECUV1H681JG	680pF	2
C150	ECEA1HKN010	1μF, 50V	1
C151, 152	ECEA1HKA010	1μF, 50V	2
C153, 154	ECUV1H222KX	0.0022μF	2
C155, 156	ECUV1H104ZFX	0.1μF	2
C160	ECEA1HKN010	1μF, 50V	1
C161, 162	ECUV1H471JG	470pF	2
C163	ECUV1H104ZFX	0.1μF	1
C174, 176	ECUV1H101JG	100pF	2
C177, 182	ECUV1H104ZFX	0.1μF	2
C194, 197	ECQB1H223JZ	0.022μF	2
C205, 206	ECUV1H104ZFX	0.1μF	2
C230	ECUV1H104ZFX	0.1μF	1
C232	ECUV1H030CCN	3pF	1
C250	EECS5R5V105	1F, 5.5V, Memory Back-up	1
C351, 352	ECUV1H471JG	470pF	2
C353, 358	ECUV1H104ZFX	0.1μF	2
C380, 381	ECEA1CKN100	10μF, 16V	2
C551	ECEA0JU102	1000μF, 6.3V	1
○ C553	ECUV1H223KBX	0.022μF	1
C554	ECUV1H104ZFX	0.1μF	1
C555	ECEA1JU470	47μF, 63V	1

Ref. No.	Part No.	Description	P/S
○ C556	ECUV1H472KBG	0.0047μF	1
C557	ECEA1CKA100	10μF, 16V	1
C558, 590, 606, 640, 641, 650	ECUV1H104ZFX	0.1μF	6
C701	ECCR1H101J	100pF	1

CPR CONTROL PANEL RIGHT CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M37471M2142S	8 bit Microcomputer	1
IC2	HD74LS07P	Hex Buffers	1
○ IC3	D74HC04C	Hex Buffers	1
TRANSISTORS			
Q1~6	2SA830SB	Transistor	6
S Q7~11	2SC1815GR	Transistor	6
S Q12	2SA1015-GR	2SA933STRS (SUB. Part)	1
S Q13	2SC1815GR	Transistor	1
DIODES			
D1~9, 11~19, 21~32, 34~42, 44~49, 51~61, 63, 64, 184	MA165	Diode	69
○ D66, 70, 71, 73, 74, 76, 77, 79, 83, 85, 86, 88, 92, 94, 95, 97, 98, 100, 101, 103, 104, 106, 107, 109, 110, 112, 113, 115, 116, 118, 122, 124, 125, 127, 131, 133, 134, 136, 137, 139, 140, 142, 143, 145, 146, 148, 149, 151	SEL6210S	LED (RED)	48
D152~156, 158~162, 164~168, 170, 174~178, 181, 182	SEL4117RM	LED (RED)	25
D157, 163, 169, 171, 180	SEL4417GM	LED (GREEN)	5
OSCILLATOR			
X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
SWITCHES			
○ S1~9, 11~19, 21~32, 34~42, 44~49, 51~61, 63~64	EVQ21907K	Push Switch	65
IC PROTECTOR			
IP1 ⚠	ICP-N10T104	IC Protector	1
VARIABLE RESISTOR			
VR2	QRVG20N01B14	10kΩ B,	1

Ref. No.	Part No.	Description	P/S
RESISTORS			
R1	ERDS2TJ333	33kΩ	1
R2~15	ERDS2TJ103	10kΩ	14
R16~20	ERDS2TJ100	10Ω	5
R21~26	ERDS2TJ680	68Ω	6
R27	ERDS2TJ473	47kΩ	1
○ R28	ERTD2ZHK333	33kΩ	1
R30	ERDS2TJ392	3.9kΩ	1
R31	ERDS2TJ182	1.8kΩ	1
R32, 33	ERDS2TJ472	4.7kΩ	2
R34	ERDS2TJ224	220kΩ	1
R35	ERDS2TJ222	2.2kΩ	1
R36	ERDS2TJ101	100Ω	1
R37	ERDS2TJ222	2.2kΩ	1
R38	ERDS2TJ332	3.3kΩ	1
R39, 40	ERDS2TJ102	1kΩ	2
R41~45	ERDS2TJ681	680Ω	5
R46	ERDS2TJ221	220Ω	1
CAPACITORS			
C2	ECEA1HKA010	1μF, 50V	1
C3	ECEA0JKA470	47μF, 6.3V	1
C4	ECRF1H104ZF	0.1μF	1
C5	ECEA0JKA470	47μF, 6.3V	1
C6, 7, 9	ECRF1H104ZF	0.1μF	3

VR MAIN VOLUME CIRCUIT

Ref. No.	Part No.	Description	P/S
VARIABLE RESISTOR			
VR1	EVD06510B24G	20kΩ B,	1

CPL CONTROL PANEL LEFT CIRCUIT

Ref. No.	Part No.	Description	P/S
INTEGRATED CIRCUITS			
IC1	M37471M2196S	16 bit Microcomputer	1
IC2	HD74LS07P	Hex Buffers	1
○ IC3	D74HC04C	Hex Buffers	1
TRANSISTORS			
Q1~6	2SA830SB	Transistor	6
S Q7~11	2SC1815GR	Transistor	4
DIODES			
D1~8, 27~30, 32~34, 54~59, 78, 79, 82~84, 105~109, 116~122, 129~136, 143~146, 148~150, 158~160, 162~164, 168, 169, 172~174, 180~185	MA165	Diode	76

	Ref. No.	Part No.	Description	P/S
○	D9, 11, 12, 14, 18, 20, 35, 37, 38, 40, 41, 43, 44, 46, 60, 62, 63, 65, 66, 68, 85, 87, 88, 90, 91, 93, 100, 102, 110, 112	SEL6410E	LED (GREEN)	30
○	D24, 26, 50, 52, 72, 74, 75, 77, 97, 99	SEL6210S	LED (RED)	10
	D123~126, 128, 137~141, 151~153, 155, 165, 176, 177, 186, 187	SEL4117RM	LED (RED)	19
	D127, 142, 154, 156, 166, 167, 188~190	SEL4417GM	LED (GREEN)	9
	OSCILLATORS			
	X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
	SWITCHES			
○	S1~12, 14~16, 18~25, 28~30, 33~56, 58~60, 62~64, 66~70, 73~75, 79~84	EVQ21907K	Push Switch	78
	SW101	QSRGT002AA	Encoder Switch	1
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	WIRE			
○	W1	QEXGRA01010A	Wire	1
	RESISTORS			
	R1	ERDS2TJ333	33kΩ	1
	R2	ERDS2TJ102	1kΩ	1
	R3~6	ERDS2TJ473	47kΩ	4
	R7~20	ERDS2TJ103	10kΩ	14
	R21~25	ERDS2TJ100	10Ω	5
	R26~31	ERDS2TJ680	68Ω	6
	R32~36	ERDS2TJ681	680Ω	5
	R37~39	ERDS2TJ221	220Ω	3
	CAPACITORS			
	C2	ECEA0JKA470	47μF, 6.3V	1
	C3, 4	ECBA1H102KB	0.001μF	2
	C6~8	ECRF1H104ZF	0.1μF	3

VSC VOICE SETTING COMPUTER CIRCUIT

	Ref. No.	Part No.	Description	P/S
	DIODES			
	D1~9	MA165	Diode	9
○	D10, 12, 13, 15, 16, 18, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33	SEL6210S	LED (RED)	16
	SWITCHES			
○	S1~9	EVQ21907K	Push Switch	9

CPSQ SEQUENCER CONTROL CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	M37471M2142S	8 bit Microcomputer	1
	IC2	HD74LS07P	Hex Buffers	1
○	IC3	D74HC04C	Hex Buffers	1
	TRANSISTORS			
	Q1~6	2SA830SB	Transistor	6
S	Q7~12	2SC1815GR	Transistor	6
	DIODES			
	D1~6, 13~18, 25~30	MA165	Diode	18
	D7~12, 19~24, 31~36	SEL4417G	LED (Green)	18
	OSCILLATOR			
	X1	EF0EC4004A3	4MHz, Ceramic Oscillator	1
	SWITCHES			
○	S1~18	EVQ21907K	Push Switch	18
	IC PROTECTOR			
	IP1 ⚠	ICP-N10T104	IC Protector	1
	RESISTORS			
	R1	ERDS2TJ333	33kΩ	1
	R2	ERDS2TJ103	10kΩ	1
	R3~14	ERDS2TJ103	10kΩ	12
	R15~19	ERDS2TJ680	68Ω	5
	R20~25	ERDS2TJ681	680Ω	6
	R26~31	ERDS2TJ100	10Ω	6
	R32, 33	ERDS2TJ103	10kΩ	2
	CAPACITORS			
	C1	ECEA0JKA470	47μF, 6.3V	1
	C2, 3	ECRF1H104ZF	0.1μF	2

CPSL LOWER CONTROL PANEL CIRCUIT

	Ref. No.	Part No.	Description	P/S
	DIODES			
	D1~3, 7~9, 13~18, 37~42, 58~61	MA165	Diode	22
	D4	SEL4417GM	LED (GREEN)	1
	D5, 6, 10~12	SEL4117RM	LED (RED)	5
○	D19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 43, 45, 46, 48, 52, 54, 55, 57, 62, 64, 65, 67, 68, 70, 71, 73, 74, 76	SEL6210S	LED (RED)	28
○	D34, 36, 49, 51	SEL6410E	LED (GREEN)	4
	SWITCHES			
○	S1~22	EVQ21907K	Push Switch	22

CPC UPPER CONTROL PANEL CENTER CIRCUIT

	Ref. No.	Part No.	Description	P/S
		DIODES		
	D1~11, 13~20	MA165	Diode	19
	D12	SEL4117RM	LED (RED)	1
		SWITCH		
○	S1~19	EVQ21907K	Push Switch	19

INV INVERTER CIRCUIT

	Ref. No.	Part No.	Description	P/S
		TRANSISTOR		
	Q3	2SC3940AR	2SC3940ARS	1
		TRANSFORMER		
	T2	QTDG001A	Transformer	1
		IC PROTECTOR		
	IP1 ⚠	ICP-N10T104	IC Protector	1
		RESISTORS		
	R4	ERDS2TJ222	2.2kΩ	1
	R5	ERDS2TJ470	47Ω	1
		CAPACITORS		
	C1	ECEA0JKA101	100μF, 6.3V	1
	C4	ECUV1H104ZFX	0.1μF	1
	C5	ECEA1CKN100	10μF, 16V	1
	C6	ECUV1H104ZFX	0.1μF	1

AS AMP & POWER SUPPLY CIRCUIT

	Ref. No.	Part No.	Description	P/S
		INTEGRATED CIRCUITS		
S	IC1~5, 8~11	SVIGM5218L	Operational Amplifier	9
		TRANSISTORS		
○	Q1	2SB1548A-P	Transistor	1
○	Q2, 3, 28	2SD2374A-P	Transistor	3
○	Q4, 8	2SC5100P	Transistor	2
○	Q5, 9	2SA1908P	Transistor	2
	Q12, 16, 33, 35	2SA1534AR	Transistor	4
	Q13, 17, 32, 34	2SC3940ARS	Transistor	4
S	Q20, 25, 29, 31	2SC1815GR	Transistor	4
S	Q21, 24, 26, 27, 30, 36	2SA1015-GR	2SA933STRS (SUB. Part)	6
		DIODES		
	D1, 2, 15 ⚠	SVDGERA1502	Rectifier	3
	D3, 4, 6, 7, 9, 10, 12, 13 ⚠	SVDS3V20	Rectifier	8
	D16, 17	MA4160	Zener, 16.0V	2
○	D18, 19	MA2180LF	Zener, 18V	2
	D20	MA4082	Zener, 8.2V	1
	D22, 48	EK04	Diode	2
	D24, 25, 36, 37, 51, 52	MA165	Diode	6
○	D26~29, 38~41	MA185	Diode	8
		COILS & LINE FILTERS		
	L1, 2	QLCGTKR68KA	0.68mH	2

	Ref. No.	Part No.	Description	P/S
		FUSES		
	F3, 5 ⚠	XBA2C25TB0	T2.5A, 250V, OTHERS	2
	F3, 5 ⚠	XBA1C31NU100	3.15A, 125V, M MC XM	4
		WIRE		
○	W1	QEXGRA01010D	Wire	1
		RESISTORS		
	R1, 2	ERDS2TJ103	10kΩ	2
	R3, 4	ERDS2TJ152	1.5kΩ	2
○	R5, 6 ⚠	ERQ2CJP6R8S	6.8Ω, 2W, Fuse Type	2
	R9, 10	ER0S2CKF1001	1kΩ, ±1%	2
	R11	ERDS2TJ681	680Ω	1
	R12	ERDS2TJ470	47Ω	1
○	R13	ER0S2CKF1502	15kΩ, ±1%	1
	R14	ERDS2TJ332	3.3kΩ	1
○	R15	ER0S2CKF1101	1.1kΩ, ±1%	1
	R17	ERDS2TJ224	220kΩ	1
	R18	ERDS2TJ222	2.2kΩ	1
	R19	ERDS2TJ102	1kΩ	1
	R20, 21 ⚠	ERD2FCVG220	22Ω, 1/4W, Fuse Type	2
	R22	ER0S2CKF1802	18kΩ, ±1%	1
○	R23	ER0S2CKF1101	1.1kΩ, ±1%	1
	R24	ERDS2TJ103	10kΩ	1
	R25	ERDS2TJ102	1kΩ	1
	R27	ERDS2TJ103	10kΩ	1
	R28	ERDS2TJ472	4.7kΩ	1
	R29	ERDS2TJ103	10kΩ	1
	R30	ERDS2TJ472	4.7kΩ	1
	R31, 32	ERDS2TJ103	10kΩ	2
	R33	ERDS2TJ472	4.7kΩ	1
○	R34 ⚠	ERQ2CJP6R8S	6.8Ω, 2W, Fuse Type	1
	R40, 41	ERDS2TJ563	56kΩ	2
	R44, 45	ERDS2TJ104	100kΩ	2
	R46	ERDS2TJ472	4.7kΩ	1
	R47	ERDS2TJ681	680Ω	1
	R48	ERDS2TJ154	150kΩ	1
	R50	ERDS2TJ152	1.5kΩ	1
	R51	ERDS2TJ124	120kΩ	1
	R54	ERDS2TJ222	2.2kΩ	1
	R55	ERDS2TJ154	150kΩ	1
	R57	ERDS2TJ152	1.5kΩ	1
	R58	ERDS2TJ124	120kΩ	1
	R61	ERDS2TJ472	4.7kΩ	1
	R62	ERDS2TJ681	680Ω	1
	R63	ERDS2TJ154	150kΩ	1
	R65	ERDS2TJ152	1.5kΩ	1
	R66	ERDS2TJ124	120kΩ	1
	R69	ERDS2TJ222	2.2kΩ	1
	R70	ERDS2TJ154	150kΩ	1
	R72	ERDS2TJ152	1.5kΩ	1
	R73	ERDS2TJ124	120kΩ	1
	R84	ERDS2TJ103	10kΩ	1
	R85	ERDS2TJ104	100kΩ	1
	R86, 87	ERDS2TJ102	1kΩ	2
	R88, 89	ERDS2TJ222	2.2kΩ	2
	R90, 91	ERDS2TJ102	1kΩ	2
○	R92	ERTD2ZHJ103	10kΩ	1
	R93, 95 ⚠	ERD2FCVG101	100Ω, 1/4W, Fuse Type	2
	R97, 98	ERDS2TJ471	470Ω	2
	R99, 100	ERDS2TJ331	330Ω	2
	R101 ⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
	R120	ERDS2TJ103	10kΩ	1
	R121	ERDS2TJ154	150kΩ	1
	R122, 123	ERDS2TJ102	1kΩ	2

	Ref. No.		Part No.	Description	P/S
	R124, 125		ERDS2TJ222	2.2kΩ	2
	R126, 127		ERDS2TJ102	1kΩ	2
○	R128		ERTD2ZHJ103	10kΩ	1
	R129, 131	⚠	ERD2FCVG101	100Ω, 1/4W, Fuse Type	2
	R132		ERDS2TJ472	4.7kΩ	1
	R133, 134		ERDS2TJ471	470Ω	2
	R135, 136		ERDS2TJ331	330Ω	2
	R137	⚠	ERD25FVJ4R7	4.7Ω, 1/4W, Flame-Proof	1
	R156, 159		ERDS2TJ184	180kΩ	2
	R160		ERDS2TJ154	150kΩ	1
	R161		ERDS2TJ220	22Ω	1
	R162		ERDS2TJ102	1kΩ	1
	R163		ERDS2TJ154	150kΩ	1
	R164		ERDS2TJ220	22Ω	1
	R165		ERDS2TJ102	1kΩ	1
	R166, 167	⚠	ERD2FCVJ4R7	4.7Ω, 1/4W, Fuse Type	2
○	R168, 169	⚠	ERF5ZXJ220	22Ω, 5W, Flame-Proof	2
	R170, 171		ERDS2TJ103	10kΩ	2
	R176		ERDS2TJ473	47kΩ	1
	R177		ERDS2TJ182	1.8kΩ	1
	R184		ERDS2TJ473	47kΩ	1
	R185		ERDS2TJ182	1.8kΩ	1
	CAPACITORS				
	C1	⚠	ECQE1A104M6	0.1μF, 125V	1
	C2, 3		ECES1HU103U	10000μF, 50V	2
	C6~9		ECEA1HKA010	1μF, 50V	4
	C10~12		ECRF1H104ZF	0.1μF	3
	C19, 20		ECCF1H100D	10pF	2
	C21		ECQG1H682KZ	0.0068μF	1
○	C22		ECQV1H684JM	0.68μF	1
	C23		ECQB1H333JF	0.033μF	1
	C24		ECQV1H683JM	0.068μF	1
	C25		ECQG1H332KZ	0.0033μF	1
	C27		ECQG1H332KZ	0.0033μF	1
	C28		ECQG1H102KZ	0.001μF	1
	C29, 30		ECQB1H333JF	0.033μF	2
	C31		ECQG1H682KZ	0.0068μF	1
	C32		ECQV1H474JZ	0.47μF	1
	C33		ECQB1H333JF	0.033μF	1
	C34		ECQV1H683JM	0.068μF	1
	C35, 37		ECQG1H332KZ	0.0033μF	2
	C38		ECQG1H102KZ	0.001μF	1
	C39, 40		ECQB1H333JF	0.033μF	2
	C49		ECEA1HKN010	1μF, 50V	1
	C51		ECCF1H220J	22pF	1
	C52		ECQB1H103JF	0.01μF	1
	C53		ECQV1H104JM	0.1μF	1
	C54		ECRF1H104ZF	0.1μF	1
	C60		ECRF1H104ZF	0.1μF	1
	C61		ECEA1HKN010	1μF, 50V	1
	C63		ECCF1H220J	22pF	1
	C64		ECQB1H103JF	0.01μF	1
	C65		ECQV1H104JM	0.1μF	1
	C66		ECRF1H104ZF	0.1μF	1
	C72		ECRF1H104ZF	0.1μF	1
	C73~76		ECEA1JU4R7	4.7μF , 63V	4
	C77, 78		ECCF1H220J	22pF	2
	C79		ECEA50Y10	10μF, 50V	1
	C80		ECEA50Y15	15μF, 50V	1
	C81		ECEA50Y10	10μF, 50V	1
	C82		ECEA50Y15	15μF, 50V	1
	C94~97		ECRF1H104ZF	0.1μF	4

ACP AC POWER SUPPLY CIRCUIT

	Ref. No.		Part No.	Description	P/S
	LINE FILTER				
	L1	⚠	SLTGLF4	Line Filter	1
	FUSES				
	F1	⚠	XBA2C40TB0	T4A, 250V, X XR XD XS XT	1
	F1	⚠	XBA1C40NU100	4A, 125V, M MC XM	1
	F2	⚠	XBA2C40TB0	T4A, 250V, except M MC XM	1
	CAPACITORS				
	C1	⚠	ECKCVA1472MF	4700pF, Line Capacitor	1
	C2	⚠	ECQU2A104MN	0.1μF, 250V, Across-the Line Capacitor	1

JACK JACK CIRCUIT

	Ref. No.	Part No.	Description	P/S
	COILS			
	L1	QLQGT3T150SA	Coil	1
	L2	QLQGT2T150SA	Coil	1
	JACKS			
	JK1, 2	SJJG100A	Head Phone	2
	JK3, 4	QJJG003AA	LIne Out	2
	WIRES			
	W1	QEXG01001RA	Wire	1
○	W2	QEXGRA01007C	Wire	1
	RESISTORS			
○	R1~4 ⚠	ERD1ANJP680	68Ω, 1W, Flame-Ploof	4
	R5, 6	ERDS2TJ392	3.9kΩ	2
	R7, 8	ERDS2TJ821	820Ω	2
	CAPACITORS			
	C1, 2	ECKF1E473ZV	0.047μF	2
	C4, 5	ECQG1H222KZ	0.0022μF	2
	C17, 18	ECRF1H104ZF	0.1μF	3

NW NETWORK CIRCUIT

	Ref. No.		Part No.	Description	P/S
	RESISTORS				
	R1, 2	⚠	ERF5ZXJ100	10Ω, 5W, Flame-Proof	2
	CAPACITORS				
	C1, 2		ECEA50Y1	1μF, 50V	2

MKB1 MANUAL KEYBOARD 1 CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUIT			
	IC1	D65022CW-285	Gate Array	1
	DIODES			
	D49~122	MA165	Diode	74
	OSCILLATOR			
	X1	EF0EC8004A5	8MHz, Ceramic Oscillator	1
	RESISTORS			
	R1	ERDS2TJ102	1kΩ	1
	R3	ERDS2TJ103	10kΩ	1
	R50	ERDS2TJ471	470Ω	1
	CAPACITORS			
	C1	ECRF1H104ZF	0.1μF	1
	C2	ECEA0JU470	47μF, 6.3V	1
	C3	ECRF1H104ZF	0.1μF	1
○	C4.5	ECCF1H151J	150pF	2

MKB2 MANUAL KEYBOARD 2 CIRCUIT

Ref. No.	Part No.	Description	P/S
DIODES			
D25~48	MA165	Diode	24
COMPONENT COMBINATION			
Z1	EXBPI8472JM	4.7kΩ×8	1

PKB PEDAL KEYBOARD CIRCUIT

	Ref. No.	Part No.	Description	P/S
	INTEGRATED CIRCUITS			
	IC1	MN1280R	Reset IC	1
○	IC2	D78C11ACWF26	8 bit Microcomputer	1
	OSCILLATOR			
	X1	QSXG1A1500A	15MHz, Quartz Oscillator	1
	COMPONENT COMBINATIONS			
	Z1~3	EXBPI8332JM	3.3kΩ×8	3
	COILS			
	L1~3	QLQGT3T150SA	Coil	3
	L4, 5	QLQGT1B800MA	Coil	2
	WIRE			
	W1	QEXG01001RA	Wire	1

	Ref. No.	Part No.	Description	P/S
	RESISTORS			
	R1	ERDS2TJ102	1kΩ	1
	R10	ERDS2TJ103	10kΩ	1
	R11, 12	ERDS2TJ472	4.7kΩ	2
	R15, 16	ERDS2TJ103	10kΩ	2
	R18	ERDS2TJ472	4.7kΩ	1
	R19~21	ERDS2TJ103	10kΩ	3
	R22 ⚠	ERD2FCG101	100Ω, 1/4W, Fuse Type	1
	R23	ERDS2TJ184	180kΩ	1
	CAPACITORS			
	C1	ECRF1H104ZF	0.1μF	1
	C4	ECEA0JKA101	100μF, 6.3V	1
	C5	ECRF1H104ZF	0.1μF	1
	C6	ECEA1CKA470	47μF, 16V	1
	C7~9	ECRF1H104ZF	0.1μF	3

EXP EXPRESSION CIRCUIT

Ref. No.	Part No.	Description	P/S
CDS			
CS1	SVEG5	Light Sensitive Device	1

■ WIRING PARTS

	Ref. No.	Part No.	Description	P/S
○	W1	QEXGSS15095A	Connector with Wire	1
○	W2	QEXGSA07035A	Connector with Wire	1
○	W3	QEXGSA06035A	Connector with Wire	1
○	W4	QEXGSA12035A	Connector with Wire	1
	W5	QEXGSS16065A	Connector with Wire	1
○	W6	QEXGST16160A	Connector with Wire	1
○	W7	QEXGSA10060A	Connector with Wire	1
○	W8	QEXGSS16025A	Connector with Wire	1
	W9	QEXGEH03025B	Connector with Wire	1
○	W10	QEXG5512015A	Connector with Wire	1
○	W11	QEXGSA04015A	Connector with Wire	1
○	W12	QEXGSA04025B	Connector with Wire	1
○	W13	QEXGSA10035A	Connector with Wire	1
○	W14	QEXGSS13110A	Connector with Wire	1
○	W15	QEXGEH04055B	Connector with Wire	1
○	W16	QEXGVH09210B	Connector with Wire	1
○	W17	QEXGSS10065A	Connector with Wire	1
○	W18	QEXGEH03090B	Connector with Wire	1
○	W19	QEXGVH07025C	Connector with Wire	1
	W20	QEXGVH03105B	Connector with Wire	1
○	W21	QEXGZA06115A	Connector with Wire	1
	W22	QEXGLT04075C	Connector with Wire	1
	W23	QEXG04005LSA	Connector with Wire	1
○	W24	QEXGEL06045B	Connector with Wire	1
○	W25	QEXGVH08100B	Connector with Wire	1
○	W27	QEXGEL06058B	Connector with Wire	1

REPLACEMENT PARTS LIST.....Cabinet and Chassis Parts

Notes:

1. The marking (RTL) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retension period of availability is dependant on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. ○ mark are new parts.
3. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
4. For part No. with area mark, check the area when placing an order.
5. The raw material indication for synthtic resin
   In order to facilitate classification of parts of synthetic resin manufacture and to promote the recycling of natural resources, a raw material symbol for such parts is indicated in the Ref. No./Material column.

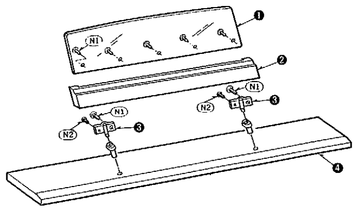
■ CABINET & CHASSIS PARTS

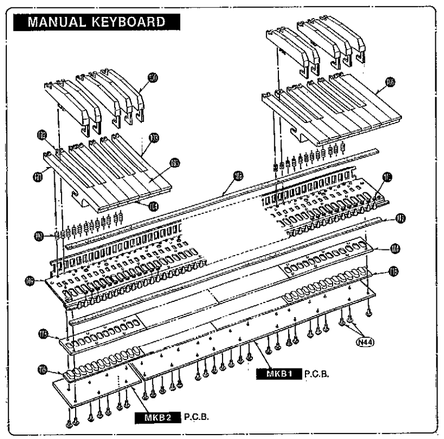
Ref. No.	Part No.	Description	P/S
SWITCH			
○ S1 ⚠	ESB8273V	Power Switch	1
DIODE			
D1	LN29RP	LED, Power Indicator	1
SPEAKERS			
SP1, 2	EAS25PL168S	25cm, 6Ω	2
SP3, 4	EAS65PH31A3	6.5cm, 8Ω	2
SP5, 6	EAS15S06A	6×13cm, 16Ω	2
TRANSFORMER			
T1 ⚠	0TPG1N021A	Power Transformer, X XR XS XD XT	1
T1 ⚠	0TPG1N018A	Power Transformer, M MC XM	1
T1 ⚠	0TPG1N020A	Power Transformer, Others	1
POWER CORD & PLUG			
○ PC1 ⚠	QJAG017AA	Power Cord, M MC XM	1
○ PC1 ⚠	QJAG012AA	Power Cord, EK XD	1
○ PC1 ⚠	QJAG015AA	Power Cord, XL XR	1
PC1 ⚠	SJAG24	Power Cord, Others	1
PC2 ⚠	SJP5213-1	Attachment Plug, X XT	1
CABINET PARTS			
○ 1	QGAG2013AA	Clear Panel, Music Rack	1
○ 2	QGAG1027AA	Ornament	1
3	SBLG230B	Stay	2
4	QKQGA073AA	Top Caver Ass'y	1
5	QGKG0002AB	Ornament	1
6	SHSG1830A	Felt	2
7 PS	QKWG014AA	Center Panel	1
○ 8	SBNG4061A	Dial Wheel	1
9	SUWG219	Binder	7
10 PS	QGPG0063CB	Control Panel	1
11	SHSG6050A	Felt	1
12	QMFG4103AA	Felt	1
13 PS	QGPG0064AD	Lower Control Panel	1
○ 14	QMFG4002AA	Felt	1
○ 15	QGPG0059AC	Subpanel Frame	1
16	SHGG9053A	Rubber	4
○ 17 PS	QGPG0003BB	Lower Control Panel, Right	1
○ 18	QMFG4002AA	Felt	1
19	SBCG110B	Button, Power Switch	1
20	SBNG7031A	Knob	1
21 PP	SHRG8390A	Cover, Power SW.	1
○ 22 PS	QGPG0058AD	Subpanel	1
23	RDG5782ZB	Gear	1
24	QAUG006AA	DDR Drive unit	1
25	QMFG4103AA	Felt	2
○ 26	QEUGMQW17D	Flat Cable	1
29	QKQGF015BA	Sliding Cover Ass'y	1
29-1	SHSG119	Felt	6
29-2	SHRG9930A	Catch, Guide Rail	10
○ 29-3	QMFG1089AA	Felt	1
29-4	SBEG31A	Lock	1
29-5	SBHG6007-1	Hinge	3
29-6	SBEG40A	Staple	1
30	SBEG60A	Key	1
31 ⚠	ESE37209	Voltage Selector, X XR XS XD XT	1
33	SUV453	Switch Cover, X XR XS XD XT	1
35	SUWG3001A	Bracket	2
36 PS	SMKG1567A	Jack Panel	1
37	SYE1128-4	Fan	2
41	SHSG3050A	Felt	1
42	SXVG3031B	Knee Lever Ass'y	1
○ 45	SUWG3033A	Bracket	2
46	SUWG3020A	Bracket	2
○ 47	QKSGE013AA	front Panel	1
48 PP	SHRG2120D	Foot	2
49 PP	QMRG7052AA	Foot	1
50 PS	SKEG7650A	Guide Rail	1
51 PS	SKEG7640A	Guide Rail	1
52 PS	SKEG7670A	Guide Rail	1
53 PS	SKEG7660A	Guide Rail	1
54	SHSG3571A	Felt	2
55 PP	SHRG1120A	Cord Clamper	1
56 PP	SHRG1110A	Cord Clamper	1
57	SXVG5130A	Expression Pedal Ass'y	1
57-1	RJS205ZA	Socket	1
57-2	SHGG908	Lamp Holding Rubber	1
57-3	XAMR55P	Lamp	1
57-4	SSHG14	Foot Switch	1
○ 58	QKQGD053AA	Rear Board (Upper)	1
○ 59	QKUG1032AA	Rear Board (Lower)	1
60 PS	SGXG1100A	Ornament, Expression	1
61	QLZG006A	Core	1
62～65	QLZG006A	Core, M MC XM EZ	4
69	QMRG7053AA	Foot	1

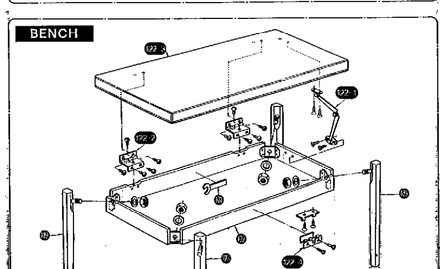
Ref. No.	Part No.	Description	P/S
PEDAL KEYBOARD			
90	SHSG1600B	Felt	1
91	SHSG1460A	Felt	14
92	SGXG1390A	Ornament	1
93 ABS	STBG2310A	Full-Base Pedal	1
94 ABS	STBG2052A	Black Key	5
95 ABS	STBG1164A	Long Key (Brown)	8
96	SUSG180A	Spring	14
97	SHGG8130A	Rubber	14
98	SHRG9240A	Spacer	14
MANUAL KEYBOARD			
100 AS	STBG2071A	Black Key	40
101 AS	STBG1101A	White Key (C and F Key)	16
102 AS	STBG1111A	White Key (D Key)	8
103 AS	STBG1121A	White Key (E and B Key)	16
104 AS	STBG1131A	White Key (G Key)	8
105 AS	STBG1141A	White Key (A Key)	8
106 AS	STBG1151A	White Key (Top Octave C Key)	2
107	SUSG271A	Spring	98
○ 108	QMFG1136AA	Felt	2
○ 109	QMWG3011AA	Chassis	2
110	SHGG9052A	Key Guide Rubber	98
○ 112	QMFG1137BA	Felt	2
113 ABS	QMWG8031DA	Spacer (12 pcs. on one)	6
114 ABS	QMWG8030CA	Spacer (13 pcs. on one)	2
115	QMWG6010BA	Rubber Switch (12 pcs. on one)	6
116	QMWG6009BA	Rubber Switch (13 pcs. on one)	2
BENCH (excpt EK)			
122-3	QKQGA077AAZ	Top Cover Ass'y	1
122-1	SBLG70A	Stay	1
122-4	SBHG50B	Hinge	2
121	SBEG190A	Spanner	1
122	QKQGA076AAZ	Box	1
○ 123	QKQGZ090AA	Leg	4

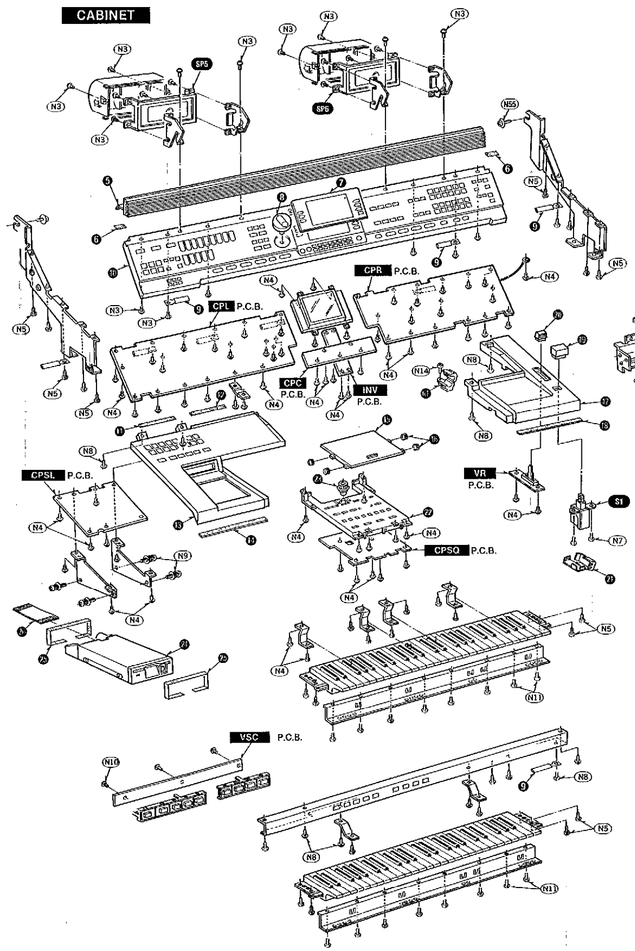
Ref. No.	Part No.	Description	P/S
SCREWS & WASHERS			
1	XTT4+12AFZ	Screw	7
2	XTB3+12AFZ	Screw	2
3	XTW3+10T	Screw	16
4	XTW3+10Q	Screw	81
5	XTB4+12A	Screw	21
7	XTBS26+10J	Screw	2
8	XTT4+10AFZ	Screw	8
9	XYN3+F6	Screw with Washer	4
10	XTW3+8T	Screw	3
11	XTB3+5C	Screw	22
12	XTS4+12A	Screw	16
13	XTS3+12A	Screw	3
14	XTB3+10A	Screw	7
15	XTS35+12A	Screw	6
○ 16	XYN3+F8FVC	Screw, X XR XS XD XT	2
17	XTW3+10JFVC	Screw	3
18	XTB35+12AFVC	Screw	3
19	XYN4+F12FVC	Screw with Washer	4
20	XTT35+10AFVC	Screw	12
21	SNEG2660A	Screw	5
22	XTB35+12A	Screw	20
23	XYN4+F30	Screw with Washer	4
24	XNS12FZ	Nut	4
25	SNEG770A	Washer	4
26	QHDG006AB	Screw with Washer	5
27	XYN3+F12	Screw with Washer	3
28	XYN3+F16FZ	Screw with Washer	2
29	XWA5BFZ	Washer	1
○ 30	SNEG960B	Screw	1
31	XYN4+F20FZ	Screw with Washer	12
○ 32	QHDG030AA	Screw with Washer	1
33	XTB35+20A	Screw	18
34	XTV3+10G	Screw	2
35	XTT4+14A	Screw	18
36	SNE499-1	Nut	8
37	XTN26+6B	Screw	1
38	XTT4+30AFVC	Screw	24
39	XWB10B	Washer	4
40	XNH10G	Nut	4
41	XTB35+14AFVC	Screw	8
42	XTS3+14A	Screw	4
43	XTS3+14AFVC	Screw	4
44	XTW3+10TFZ	Screw	60
45	XTB3+14AFZ	Screw	4
○ 46	XWG3F13FZ	Washer	4
47	XTB3+8FVC	Screw	2
48	SNEG150B	Washer	1
49	XTV3+10G	Screw	2
50	XTB3+6B	Screw	2
51	XNG5BS	Nut	1
52	XWA4B	Washer	1
53	SNEG360A	Screw	1
54	XTT4+16AFZ	Screw	2
55	SNEG2400A	Screw with Washer	2

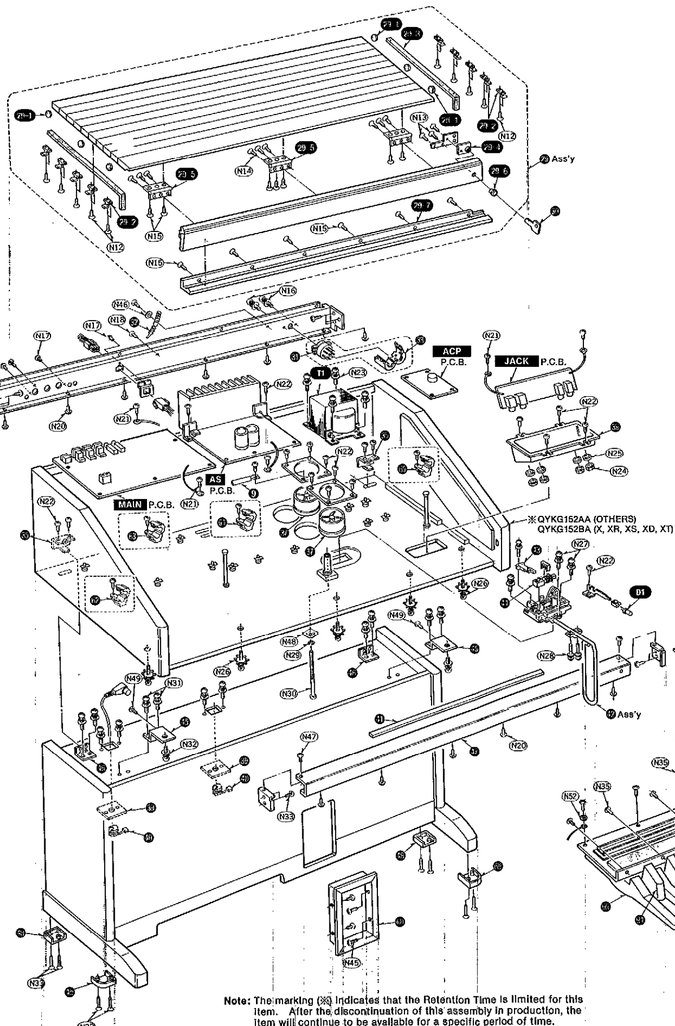
CABINET PARTS LOCATION

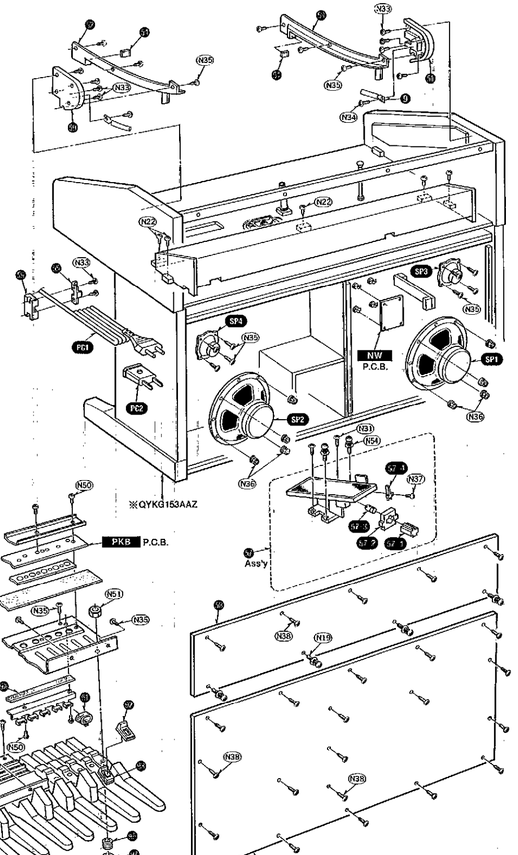






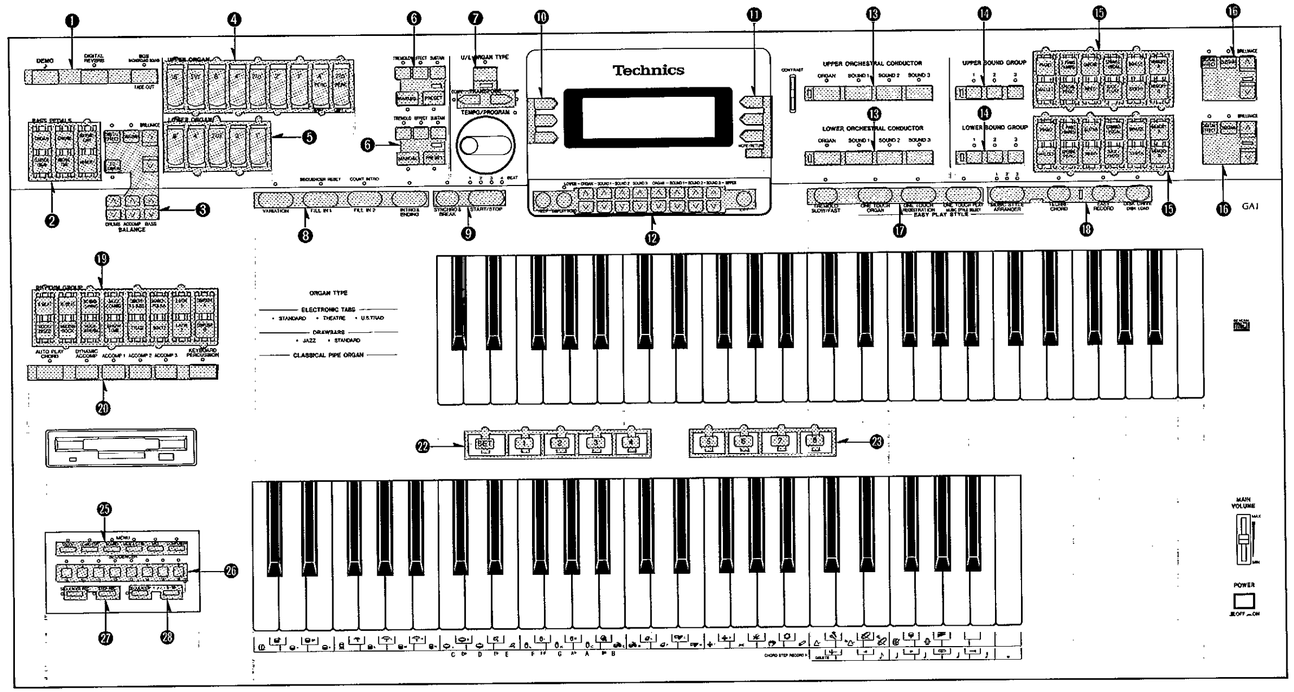






Note: The marking (※) indicates that the Retention Time is limited for this item. After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time.

■ BUTTON

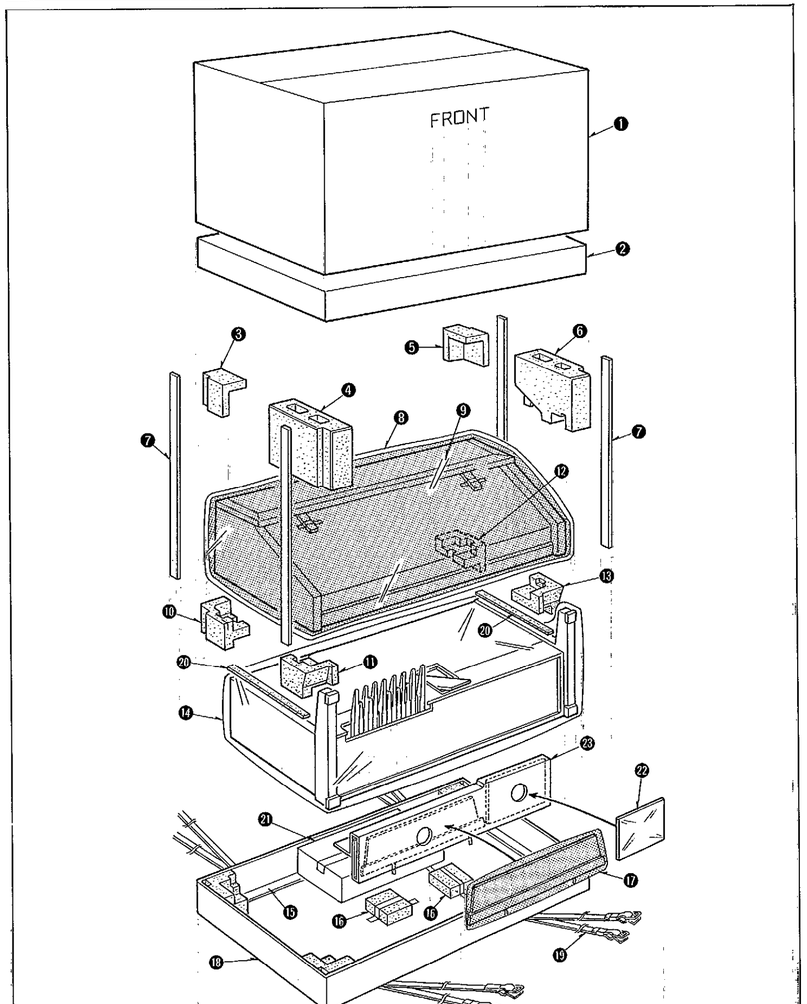


■ BUTTON

Ref. No.	Part No.	Description	P/S
	BUTTON		
○ 1	QGUG1240AA	Button	1
○ 2	QGUG1278CA01	Button	1
○ 3	QGUG1242AA01	Button	1
4	QGUG1279BA01	Button	1
5	QGUG1279DA01	Button	1
○ 6	QGUG1243AA01	Button	2
○ 7	QGUG1244AA	Button	1
○ 8	QGUG1245AA	Button	1
○ 9	QGUG1246AA	Button	1
10	QGUG1252BA	Button	1
11	QGUG1253BA	Button	1
○ 12	QGUG1249AA01	Button	1
○ 13	QGUG1250AA	Button	2

Ref. No.	Part No.	Description	P/S
○ 14	QGUG1251AA	Button	2
15	QGUG1278DA01	Button	2
16	QGUG1241BA01	Button	2
○ 17	QGUG1247AA	Button	1
○ 18	QGUG1248AA	Button	1
○ 19	QGUG1278AA01	Button	1
○ 20	QGUG1254AA	Button	1
○ 22	QGUG1281AA01	Button	1
○ 23	QGUG1281BA01	Button	1
25	QGUG1255AAK	Button	1
26	QGUG1256AAK	Button	1
27	QGUG1257AAK	Button	1
28	QGUG1257ABK	Button	1

PACKING



■ PACKING PARTS

	Ref. No.		Part No.	Description	P/S
			PACKING PARTS		
	1		QPGG0268AA	Carton	1
	2		QPGG0270AA	Top Case	1
	3	PS	QPNG0429BA	Pad	1
	4	PS	QPNG0427BA	Pad	1
	5	PS	QPNG0430BA	Pad	1
	6	PS	QPNG0428BA	Pad	1
	7		QPQG032AA	Prop	4
	8	PE	SPHG220A	Polyethylene Bag	1
	9	PE	SPHG620A	Protection Sheet	1
	10	PS	QPNG0433BA	Pad	1
	11	PS	QPNG0431BA	Pad	2
	12	PS	QPNG0434BA	Pad	1
	13	PS	QPNG0432BA	Pad	1
	14		SPHG770A	Polyethylene Bag	1
	15		QPQG030AA	Frame	1
	16	PS	SPNG5749A	Pad	2
	17	PE	SPHG2020A	Protection Sheet	1
	18		QPGG0272AAS	Bottom Case	1
	19		SPSG40A	Band	2
○	20	PE	QPHG077A	Protection Sheet	4
	21		QPGG0249AA	Carton Box for Bench 1 except EK	1
○	23		QPGG0273AA	Music Rack Cover	1
			OPERATING INSTRUCTION MANUAL		
○	22		QQFGGA3AA	Operating instruction manual, Others	1
○	22-1		QQTG0246A	ENGLISH	1
○	22		QQFGGA3CA	Operating instruction manual, M	1
○	22-1		QQTG0249A	ENGLISH	1
○	22		QQFGGA3DA	Operating instruction manual, MC	
○	22-1		QQTG0246A	ENGLISH	1
○	22-2		QQTG0250A	FRANCAIS	1
○	22		QQFGGA3EA	Operating instruction manual, EZ EA	1
○	22-1		QQTG0251A	DEUTSCH	1
○	22		QQFGGA3FA	Operating instruction manual, EW	1
○	22-1		QQTG0246A	ENGLISH	1
○	22-2		QQTG0250A	FRANCAIS	1
○	22-3		QQTG0251A	DEUTSCH	1
○	22		QQFGGA3GA	Operating instruction manual, EF	1
○	22-1		QQTG0250A	FRANCAIS	1
○	22		QQFGGA3HA	Operating instruction manual, EH	1
○	22-1		QQTG0250A	FRANCAIS	1
○	22-2		QQTG0251A	DEUTSCH	1
○	22-3		QQTG0252A	NERDERLANDS	1
○	22		QQFGGA3JA	Operating instruction manual, EP XM	1
○	22-1		QQTG0246A	ENGLISH	1
○	22-2		QQTG0253A	ESPANOL	1
○	22		QQFGGA3KA	Operating instruction manual, X	1
○	22-1		QQTG0246A	ENGLISH	1
○	22-2		QQTG0253A	ESPANOL	1
○	22-3		QQTG0254A	中文	1
○	22		QQFGGA3LA	Operating instruction manual, XT	1
○	22-1		QQTG0254A	中文	1

659

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